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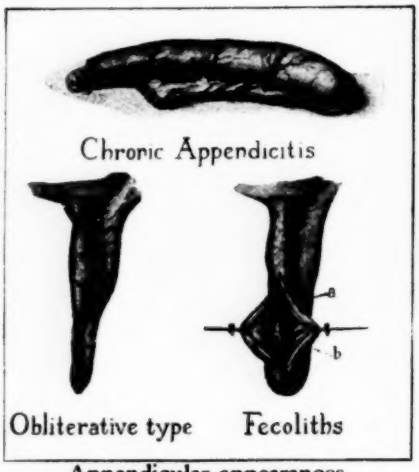

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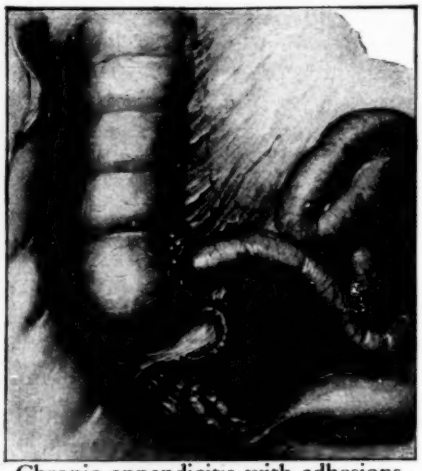

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Injustice of the Volstead Act to the Medical Profession*

THOMAS C. CHALMERS, M.D.,
Forest Hills, New York

"We the people of the United States, in order to form a more perfect union, established justice, insure domestic tranquility, provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and our posterity, do ordain and establish this Constitution for the United States of America."

Thus reads the preamble to the governing instrument of our country, adopted in 1787, since then and today the fundamental basis of our political existence.

In Article V of the Constitution, the power of amendment is conferred upon Congress, under certain conditions including ratification by the States. In the exercise of this power prior to the adoption of the 16th Amendment, in force on February 25, 1913, that is to say, for a period in our existence under the Constitution of 126 years, 15 amendments were adopted limiting the power of the Government and setting forth the rights of the people, but up to the time no amendment was adopted to directly limit the rights of citizens. The 16th Amendment gave Congress the power to lay and collect taxes on incomes, but even this was hardly an added power but rather a mode of operation, the purpose being to obviate the necessity of distributing direct taxes among the States; while the 17th Amendment merely had to do with the election of Senators.

Hence, the first amendment of the Constitution to directly place a limitation upon the rights of citizens is the 18th Amendment, which states, Section 1. "the manufacture, sale, or transportation of intoxicating liquors within, the importation thereof into, or the exportation thereof from the United States and all territory subject to the jurisdiction thereof for beverage purposes is hereby prohibted."

Section 2 of the Amendment states: "The Congress and the several States shall have concurrent power to enforce this article by appropriate legislation."

The Amendment became operative on January 29, 1919.

The enforcement of the first directly prohibitive Amendment of the Constitution of the United States, irrespective of the subject of its prohibition, is under any circumstances a procedure of very great moment to its citizens. The enforcement of the 18th Amendment is of particular moment, first, because it affects the traditional habits of a very considerable body of its citizens; and, secondly, because the prohibition is not unqualified and for all purposes, but is specifically limited to the use of intoxicating liquors for beverage purposes.

Whether or not the plea for prohibition of intoxicants as a beverage, either based on moral grounds or upon its relation to health and longevity and hence on the ground of human efficiency, be or be not well made, it is not our purpose at this time to consider. It is the law of our country, ratified by the States and embodied in the Constitution. Moreover, it has been upheld by the highest court and so beyond question is the law of the land as good citizens we are bound to sustain it and abide by its consequences. If it be true, as some maintain, that it is not in harmony with the beliefs of the great mass of the people, that it places restrictions upon their liberty with which they are not in sympathetic accord, and hence that it lacks popular support, and if, all this being true, time fails to change this attitude, then it may fail to accomplish the reforms which its advocates predict and even may, by reason of this lack of support, cease to operate altogether. We are not at this time concerned with this aspect of the 18th Amendment; nor do we wish to offer any opinion or criticism one way or another on these aspects of the subject.

It is our purpose at this time to consider whether the law as ratified by the States is correctly and fairly interpreted, as it relates to the use of alcohol by the medical profession in the treatment of disease, by the act of the 66th Congress, known as the National Prohibition Act of October 19, 1919, and by the authorized Regulations prescribed by the Federal Prohibition Commissioner and the Commissioner of Internal Revenue and approved by the Secretary of the Treasury for carrying out the provisions of the Act.

*The President's inaugural address, delivered before the Society of Medical Jurisprudence, January 14th, 1924, at the New York Academy of Medicine.

At the outset, let it be clearly put forth that the physician neither asks nor desires that any exception whatsoever be made either for himself or his patients to the prohibtion in the use of alcohol as a beverage. As regards this, he stands with the rank and file of the citizens of the land, in no way claiming or desiring any special or exceptional privilege. He is merely a citizen, subject to the same regulations that apply to any and every other citizen.

If there were absolute and perfect compliance with law, if every inhabitant put the same interpretation upon it and willingly and without transgression abode by the spirit and letter of the law, then there would be no need of regulations. However, such is not always the case. In many instances human nature desires to satisfy its individual likes regardless of legal restrictions adopted for the welfare of the whole, and moreover, it seeks with more or less persistence to accomplish these ends. Further, where there is a widespread lack of sympathy, notwithstanding the entire legality of a restriction, then such efforts are correspondingly widespread and persistent, even to the extent of gross transgressions of the law.

It is on these accounts that the legitimate use of intoxicating liquors must within reason be safeguarded, so that, for example, under the pretense of their medicinal use and for trivial reasons, they will not in fact be used as a beverage and hence the spirit and operation of the law be defeated.

That such use is denounced by the responsible element of the profession is indicated by the adoption by the House of Delegates of the American Medical Association, June 28th last, of the amended resolution offered by me as follows:

Whereas, The honor and integrity of the Medical Profession is being reflected on by the unnecessary, unprofessional and unlawful prescribing of alcoholic liquors by some unscrupulous physicians:

Resolved, That in the judgment of the House of Delegates of the American Medical Association, in session assembled, every state and county Medical Association should use their best endeavor to discipline physicians who either negligently of wilfully prescribe alcoholic liquors other than in accordance with the law and to purge the medical profession of physicians who wilfully, under the cloak of their profession, prescribe alcoholic liquors for other than medicinal purposes; and

Resolved Further, That the Secretary of this Association forward a copy of this resolution to every state and county Medical Association affiliated with the American Medical Association.

On the other hand, if the therapeutic use of alcohol serves a serious and real use in the treatment of disease, it is equally, and where health and life are at stake even more important that its use should not be so hampered by restrictions that it will fail of a valuable and necessary service, which failure the 18th Amendment dos not contemplate.

This leads to the question as to whether the use of alcoholic stimulants is a valuable and necessary measure in the treatment of disease.

There are those physicans who not only advocate alcohol in particular cases but find this agent necessary to secure at their hands the best results of treatment, even, in severe conditions, to the extent that the use of alcohol determines the outcome of the case, actually deciding between life and death; while in a very considerable number of cases it determines between continued suffering and a condtion of relative comfort in those chronically diseased. Yet, on the other hand, as is in keeping with most human agencies and particularly where such have been the object of propaganda on moral grounds, there are those physicians who fail to recognize the value and necessity of alcohol as a therapeutic agent.

In an attempt to gain an expression of opinion in the matter from a large number of medical practitioners in this country, the American Medical Association invited an expression of opinion from 53,900 physicians, of whom 31,115 complied. To the question "Do you regard whiskey as a necessary therapeutic agent in the practice of medicine, 15,625, or 51% of those answered in the affirmative. In New York State the answer was in the affirmative from 65%; and in New York City, from 72%. The large majority of physicians who consider whiskey necessary believe it valuable in pneumonia, influenza, and other acute infectious diseases. It will be noted that of those who voted in the negative on the question of regarding whiskey as a necessary therapeutic agent, a certain number and possibly a very considerable number would doubtless recognize it as a valuable even if not necessary therapeutic agent in these diseases. Then too, we must recognize the greater probability of a large percentage of votes being cast by propagandists against its use than by those in its favor.

The opinion recognizing the therapeutic value of alcohol is, further, expressed in the standard literature, of which I quote only a few of many authorities:

Hobart Amory Hare says, in a Text Book of Practical Therapeutics, page 78:

"Notwithstanding the almost universal use of alcohol as a stimulant by the laity and the medical profession, it cannot be denied that evidence of scientific character and weight is constantly being brought forward which shows that its dominant action is depressant upon all parts of the body. Nevertheless clinical experience, too great to be ignored, stands for the continued employment of the drug. The drug does not act as a stimulant in the ordinary sense of the term, but nevertheless readjusts the circulation by dilating the peripheral vessels and influences the protective powers of the body by affecting the blood cells or the blood stream or the lymph."

Oliver T. Osborne, in the Principles of Therapeutics, page 242, says:

"The internal therapeutic use of alcohol should be entirely separated from a consideration of alcohol as a beverage or from the prohibition standpoint. Alcohol is a drug, and as such has many valuable uses. There are times, for individuals who are weak, and in old age, when a little bitter tonic which contains alcohol, taken before meals, is perfectly legitimate treatment. In the age when alcohol could be obtained, it was a perfectly harmless proposition, in old age, with sleeplessness, to order a small amount of alcohol in the form best suited to the individual, to be taken before bed time. It is in such cases much less likely to do harm than is a stronger hypnotic drug."

Reynold Webb Wilcox, in Materia Medica and Therapeutics, page 742:

"Alcohol is of immense advantage in many instances of febrile disease. . . . It is by no means adapted for all varieties of fever, and hence its effects should always be carefully watched. . . . While it is often given when quite unnecessary, there are many instances in which it is of inestimable value in such affections as typhoid and typhus fevers, pneumonia, small pox, cholera, and diphtheria and also in gangrene, phaemia, septicaemia, etc."

The American Therapeutic Society has expressed itself as follows:

"Alcohol in the form of Brandy and Whisky is a drug of great importance in a limited number of diseases and conditions for which there is no known substitute."

The evidence clearly establishes, then, that there is a great body of physicians in this country which finds alcohol necessary to the proper treatment of patients who will have been entrusted to them by State license.

It is clear, therefore, that the regulations of the 18th Amendment have at least two interests to serve, namely, the prohibition of alcohol as a beverage and the legitimate use of alcohol in the treatment of disease. It is not to be expected that the layman, no matter how intelligent and how much possessed of general informa-

tion, will appreciate the exact demands for the use of alcohol in the treatment of disease.

In this connection, it is to be regretted that our political organization does not include representation of the department of medicine and public health by secretarial appointment on the Presidential cabinet of a physician so that whenever such a medical question arises, the interest of the public in this field shall be properly and correctly served. Under the circumstances it is perhaps natural that what was uppermost in the minds of those proposing regulations was doubtless the enforcement of the law rather than the needs of the sick and dying, or, if this be too harsh, that they placed more emphasis upon the former than upon the latter. Doubtless some few physicians were consulted perhaps only in a casual way. If the usual procedure were followed, some one or few who were about to formulate the regulations to control the treatment of the serious diseases mentioned, by 147,000 physicians, including 6,500 hospitals in the United States and territories, asked his family physician what he thought of the matter and was largely guided thereby. Or was it referred to some academic body whose members were not serving the sick and dying or doing so only incidentally? Certain it is that the regulations were not expressive of the legitimate needs of the sick nor considerate of the rights of the physician in attendance, as regarded by a very large body of medical practitioners.

The regulations formulated read:

Sec. 71. Use of Intoxicating Liquor by Physicians.—Distilled spirits, wines, and the alcoholic medicinal preparations fit for use for beverage purposes which are authorized to be manufactured by section 60, may be administered by physicians to their patients for medicinal purposes in cases where the use of such liquor is believed necessary to afford relief from some known ailment and delay in procuring the same through a retail pharmacist upon a prescription might result in loss of life, aggravation of the ailment, or intense suffering. Physicians may obtain not more than 6 quarts of liquor during any calendar year to be administered to their patients only in the quantities necessary to afford relief at the time of administering and may not sell or furnish the same to such persons or to any other persons. The total amount of spiritous liquor administered to any one patient, by one or more physicians, during any period of 10 days may not exceed I pint, and where such patient is also procuring spiritous liquor upon prescriptions through a retail pharmacist, the aggregate amount so procured by him and administered to him by a physician or physicians as herein authorized may not exceed such quantity.

(a) Distilled spirits, wines, or the alcoholic preparations fit for use for beverage purposes authorized to be manufactured by section 60 may be used by physicians in the compounding of alcoholic medicinal preparations under the requirements of Articel XI; Provided, however, That where such preparations are fit for use for beverage purposes according to the standards contained in section 60 the same may only be administered to patients in the same manner and subject to the same restrictions as other intoxicating liquor. Alcohol may also be used by physicians in the course of their practice for other than internal use.

(b) In filing application for permit to use intoxicating liquor physicians should indicate the kind of liquor which they desire to use, the quantity, the exact manner in which and the purpose for which they desire to use the same.

Physicians Prescribing Intoxicating Liquor for Medicinal Purposes

Sec. 77. Physicians who have filed applications on Form 1404, and obtained permits to prescribe intoxicating liquor, as provided in Article III, may prescribe distilled spirits, wines or such alcoholic medicinal preparations which are fit for use for beverages as are authorized to be manufactured by section 60, for persons upon whom they are in attendance, if after careful physical examination of such persons, or in cases where such examination is impracticable upon the best information obtainable, the physician believes that the internal or external use of such liquor as a medicine by such persons is necessary and will afford relief to them from some known ailment. Physicians who do not hold permit as above may not issue prescriptions for intoxicating liquor.

(a) No prescription may be issued for a greater quantity of intoxicating liquor than is necessary for use as a medicine by the person for whom prescribed, and in no case may spirituous liquor in excess of 1 pint within any period of 10 days be prescribed for the same person by one or more physicians. Further, where spirituous liquor is being administered to any person by any physician or physicians as provided in section 71, the aggregate quantity so administered and the quantity prescribed for any such person may not exceed 1 pint within any period of 10 days. Physicians are not permitted to write prescriptions for liquor for their own use or to use any liquor procured upon prescriptions written by them. Intoxicating liquor procured upon prescriptions may only be used for medicinal purposes by the person for whom prescribed and may not be sold or otherwise disposed of.

(b) Prescriptions for intoxicating liquor may only be filled by a pharmacist. No prescription may be filled more than once.

(c) All prescriptions for intoxicating liquor must be made upon Form 1403, and must contain all the data called for by such form, except that in any case where a physician holding a permit to prescribe liquor is not in possession of such form, due to any reason justifying such condition, and delay in procuring the same might result in loss of life, aggravation of an ailment, or intense suffering, he may prescribe intoxicating liquor upon a form other than Form 1403: Provided, however, That such form of prescription must contain all the information called for on Form 1403. Prescriptions for intoxicating liquor may not cover any other medicine or drug.

(d) Blank prescriptions, Form 1403, are issued by the Commissioner in book form, serially numbered, and may be procured free of cost by any physician holding a permit to prescribe intoxicating liquor from the Director. The Director should not issue more than one book of such prescription blanks to the same physician at one time. However, a physician may procure a book of blanks when the blanks remaining in the book in his possession are not sufficient to cover his needs for a reasonable period in advance.

(e) The prescription blanks issued by the Commissioner are printed with stubs attached, the stub of the blank being a duplicate thereof. All prescriptions for liquor on Form 1403, as well as those on other forms in emergency cases as above provided, must be written in duplicate, both copies to be signed by the physician and contain all the information required herein. In the case of prescriptions issued on Form 1403, the books containing the stubs or duplicate copies must be returned to the Director for whom secured immediately upon the last prescription blank contained therein being used, or earlier if so directed by the Commissioner or Director. Any unused, mutilated or defaced blanks remaining in the book must be returned therewith. In the case of prescriptions written on other forms in emergency cases, the duplicate copies thereof must be forwarded to the director at the end of the month in which issued. In all cases blanks, Form 1403, must be used in the order of the serial numbers printed thereon.

(f) Every physician who prescribed intoxicating liquor is required to keep a record on book Form 1402 to be procured by him from the Director. The physician must keep a record alphabetically arranged of every prescription for intoxicating liquor issued by him, showing the date of the prescription, the amount and kind of liquor prescribed, the name of the patient to whom issued, the purpose or ailment for which prescribed, and the directions for use thereof, including the amount and frequency of the dose.

Is this not restriction without representation? Is it not a travesty upon democracy as bad or worse than taxation without representation; and, if the blood of our forebears is still coursing through our systems and animating our sense of justice, may it not well call forth from the medical profession that same disapproval that found expression in the beginning of our political existence?

The summary of the A. M. A. referendum states:

"The majority of physicians would welcome a change in prohibition regulations which would take from them the burden of distribution of alcoholic liquors." Is it not enough that the physician should be charged with the responsibility of the treatment and care of the sick without having the duties arising from the distribution of liquor imposed upon him? Should the physician because of the 18th Amendment now qualify as a distributor of intoxicants, carrying his stock which must be protected from theft, and his system of records which may be scrutinized by lay officials totally unqualified to pass judgment upon medical questions involved, always subject to mistrust as though his health giving and life saving administrations were those of a dishonest purveyor of liquors, a bootlegger?"

Again, the summary of the referendum states:

"*Many* physicians say that limitation to a definite minimum quantity of alcoholic beverages over certain periods is a serious interference with treatment of conditions in which greater quantities are required." The use of the term "alcoholic beverages" in this connection is perhaps unfortunate for it may inadvertantly carry with it the suggestion of a drink used for a pleasurable purpose.

It were better to substitute the expression alcohol as a therapeutic agent, for it is only in this capacity that the physician is justified in administering alcohol at all. As previously stated, we make no plea for physician or patient, as to the use of alcohol as a beverage.

Now the dosage of medicine is a responsibility entrusted entirely to the physician, and for which he is accountable. The law does not state how much or how little hydrocyanic acid he may administer to the patient, how much or how little strychnine may be used, how much narcotic may be administered, so long as its use is for treatment of disease and not to satisfy a harmful habit. There is no claim that the restriction of alcoholic intoxicants is for the good or protection of the patient.

It is merely that because, foresooth, a certain small number of individuals in the profession might prescribe more than a pint of whiskey in ten days when it is not needed, thereby giving to the excessive administration the character of a beverage instead of a medicine, that all members of the profession are enjoined from using in excess of this amount, though their judgment leads them to believe that the very life of the patient is jeopardized and even sacrificed thereby. There is no question that a quantity in excess of the amount legalized is at times demanded to save the lives of patients. Many physicians, in the words of the referendum, say that the limitation of the Act is a serious interference with treatment in which greater quantities are required. From my personal experience, as well as that of other physicians known to me, men of the highest rank in the profession, I state that in certain cases, one pint of whiskey in 10 days is utterly insufficient, and characterize as ridiculous and short sighted any attempt of laymen to establish limitations of dosage for the medical profession. Such a policy does not serve the interest of our citizens and if I may venture a legal opinion, has never been authorized by constitutional amendment ratified by the States.

In order to make an organized protest to the regulations cited and if possible, to establish the right of full freedom of practice by lifting from the medical profession the restriction of the Volstead Act, a body of physicians in this city, organized under the name "The Association for the Protection of Constitutional Rights," brought an action on Nov. 18, 1922, in the United States District Court against the proper Prohibition Agents to show cause why the provision of the laws, enacted under the Eighteenth Amendment in so far as they relate to physicians in the practice of medicine should not be judicially declared inoperative. The point made by the complainant in this action include:

The 18th Amendment does not prohibit or authorize the prohibition of prescriptions by Physicians of liquor for medicinal purposes.

To deprive the sick of their medicine which in the opinion of their physicians, however administered, is essential to their cure, is not a justifiable exercise of police power in preventing the use of alcoholic liquor for beverage purposes.

Regulations drawn by an executive department under a delegated power, which are in derogation of the status which they are intended to enforce, are illegal, just as a statute which is a derogation of the Constitution is invalid.

As a substitute for the unconstitutional prohibitions of the Volstead Act in the giving of prescriptions and the invalidity of the regulations, there can be appropriate, salutary and comprehensive legislation and regulations, not as to the prohibition, but as to the conditions of issuing such prescriptions.

Judge Knox, before whom the suit was heard, declared the limitation by Congress of the amount of alcohol which may be prescribed by physicians, for patients who in their judgment require alcohol to be null and void, and issued an injunction restraining the prohibition authorities from enforcing the medical restrictions of the Volstead Act.

Federal limitations on the medicinal use of intoxicating Liquor was again held unconstitutional by Judge Bourquin in a decision rendered in Helena, Montana, in a case in which the defendant, a physician was charged with issuing more than one hundred prescriptions within a ninety-day period, and with having prescribed more than one-half pint of alcohol to one patient in ten days. This decision not only denies the constitutionality of the law as applies to the amount of liquor that may be prescribed but also of the portions limiting the number of prescriptions that may be issued.

The decision declares the law "nothing but an arbitrary restriction upon the number of patients a physician shall treat in the ordinary course of circumstances, or is an unreasonable mandate to malpractice in respect to them."

While these are the most flagrant violations of the rights of physicians, they by no means constitute all.

The Assistant Secretary of the Treasury made public supplemental instructions to the Public Health Service, June 29, 1923, prohibiting the allowance of beer and malt liquors to liners for medicinal purposes. The order said that under Section 2 of the Act of Nov. 29, 1921 (Willis-Campbell Act) "only spiritous and vinous liquors may be prescribed for medicinal purposes in the United States all forms of beer and malt liquors being thus prohibited by exclusion."

The district Court of Appeals of California, Second District, Division 2, in discharging a writ of habeas corpus and remanding a petitioner (licensed pharmacist) into the custody from which he had sought to be released, rendered an opinion that we believe wrong in its premises and hence in violation of medical rights.

"If wine, whiskey, brandy and the like are useful for medicinal and other non-beverage purposes, still the evils which flow from their use as a beverage so greatly menace the health, peace, morals and safety of society that), the lawmaking branch of the Government may with reason regard those evils as overwhelmingly outweighing the good services which such liquors may perform as medicines."

In making these objections to the attitude of Congress towards the rights of physicians, I have referred to the fact that a certain small number of the profession are so far untrue to their obligations that they will write prescriptions for intoxicants for beverage purposes. The management of such cases, however, no more justifies the abrogation of the rights of the profession as a whole and of the sick whom they treat than is the placing of illegal restraint upon the whole community because some few commit crime. The regulation that all dogs shall be muzzled because some dogs bite does not apply here. It must not be forgotten that citizens are human beings and that the people of the United States have ordained their Constitution to establish justice, insure domestic tranquility, provide for the common defense, promote the general welfare, and secure the blessings of liberty to ourselves and posterity.

Governmental Regulation of Physicians*

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OF THE NEW YORK BAR.
New York.

I desire to call attention to what we frequently overlook in dealing with governmental regulations and that is that the nation is nothing but ourselves organized. It is the people of the community banded together in governmental form for the purpose of transacting the functions of a government.

In the administration of the affairs of the professions this function is performed by the states. When this government was formed the states were sovereign communities and they have given up that sovereignty to the central government. In New York State we have and exercise the regulation of personal conduct by provisions of the Federal constitution. The theory of our government from its beginning has been the recognition of the individual entity of the states. The original Federal party was in favor of a strong governmental power and its opponent, the Democratic party of today, was all for the rights of the states, and the conflict of sixty years ago as to the rights of the states to individual participation in governmental support, which was one of the tenets of the Democratic party.

Through the development of public sentiment, strong enough in the operation of governmental factors under a democratic administration, through the 18th Amendment the states' governments were deprived of the first of the attributes of the governmental regulation of personal conduct in the forbidding by the nation through the action of the people of the states of the right of the states to deal in, transport and dispose of alcoholic liquors. The shock to those familiar with the history of the Constitution brought about by that departure from our original theories of government was great, and it can be understood only by a clear comprehension of two factors which enter into it.

Experience had proven by attempts made by state governments to enforce local option that with nothing separating the states except state lines it was impossible for the states to carry out a prohibition law as long as the adjacent states authorized their citizens to sell intoxicating liquors.

The second factor which appeared was the economical development of medical science in relation to industry and the proof through careful study that the inefficiency of workers who indulged in alcoholic liquors was an impediment to the efficiency of the work.

These factors, added to a strong agitation by a powerful body of good people who believed the millennium would be brought about by prohibition and that it would operate for the benefit of the nation in general, resulted in the enactment by the Government of the United States through the people of the states of the 18th Amendment which gave power to the Federal Government to regulate the conduct of individuals to an extent that the Federal Government had never before exercised.

I am bringing to your attention these factors of the Governmental attitude toward professional men engaged in the practice of medicine as an introduction to the address that my successor to the presidency of this society, Dr. Chalmers, is to make, for this change in the position of our state governments had its effect on the unrestricted power of the physicians to prescribe. The Federal Government made a new departure.

In considering the problem of the regulation of the practice of medicine by the people through the government, there must be borne in mind the fundamental principles regulating such a question; that is, the power of the state to protect the health and welfare of its citizens. Prior to the prohibition law there had been slight control of physicians but nothing which impaired their freedom to practice medicine in comparison with the new regulations in the Volstead Act. The power of the state to regulate the medical profession has been exercised since the commencement of our government. Our Constitution to some extent limited the power of the Legislature, but in dealing with the legal and medical professions the power of the Legislature is very broad. It is governed by the prevailing sentiment at the time of the exercising of its power in the highest court of any state. A legislature may pass any regulative rule, and unless it shall be found by the highest court not to be an abuse it will be upheld and enforced.

It needs no argument, and the members of the medical profession will be the last to maintain that it is not highly desirable that the profession should be carefully guarded from two points of view: first, from the standpoint of the health and welfare of the community that there shall not be licensed to practice men who cannot meet the highest tests that can be applied. As education has become widespread and medicine has become less and less an exact science, these requirements have become more and more stringent until in our state today the requirements for admission to practice medicine are more severe than anywhere else.

While in the practice of what we call medical science we have upheld the necessity for high standards of training and careful tests, all the time the danger has existed and has shown itself, that while people want to have their medical doctors who are really professional men qualified by the highest standards, there is a desire on the part of every new practice that comes up for the curing of disease on behalf of those who form such a school, an effort made to allow it to practice without the same educational qualifications, and the higher the tests made for entry in the profession, the greater the danger of letting down the bars for every new school of medical practice. This was evident in the regulation of such branches of the healing art, so called, as osteopathy and the various therapies which have grown up to such an extent in the last few years.

Regarding these branches of the practice of the healing art, we must bear in mind that our government is nothing more nor less than a reflection of the mental point of view, the moral sentiment, of the community. Some of you had the pleasure of hearing the very instructing and entertaining talk given at our dinner last spring by Dr. Robert T. Morris. In discussing the desirability of making progress in higher things in our government, he pointed out that you cannot make progress any faster than you can get the desirability of the proposal you have in mind through the minds of the masses who compose our population. The legislative agents reflect fairly accurately the sentiment of those whom they represent. As Dr. Morris put it, it is hard

*Address of the Out-Going President, delivered before the Society of Medical Jurisprudence, January 14th, 1924, at the New York Academy of Medicine.

to assay th mentality of the average man, and while in days gone by this situation of the inertia of the masses was recognized, in trying to put through a new proposition, it was not understood until the psychological tests of candidates for the army during the War showed that the average mentality of those who formed the adult male population was about twelve years old for a normal child. And the crisp phrase he coined to picture the idea I am dwelling on was that "In dealing with the mental processes of our democracy and propositions of a legislative nature to be submitted to them, you have to recognize the dunce power of the duodecin."

That means that for the most part it is impossible to enact legislative proposals unless they are simple enough to be recognized as desirable by a possessor of the mentality of a twelve year old child. As you realize the painful process by which our legislatures have made their way through the regulation of the professions, you will see there is strong support for the thesis Dr. Morris laid down.

In dealing with the professions by our government the first important thing is education. You can improve the mind of a twelve year old child by education. You can improve the mentality of the voting public by a slow process of education. The enactment of a constitutional amendment such as the Volstead Act, which has succeeded the 18th Amendment was really a remarkable demonstration of the process of education along the lines I have outlined. As to whether that regulation is fair as it affects the physicians, we shall have the privilege of hearing discussed by our incoming President.

Discussion

Dr. Warren Coleman: Regarding Mr. Clark's remarks about the efficiency of the workers who take alcohol in moderation, I shall merely refer him to the latest authorative work upon alcohol, entitled The Action of Alcohol on Man, by Ernest H. Starling.

Mr. Clark also spoke of the 18th Amendment as conferring upon Congress the power to regulate the therapeutic use of alcohol by the physician. Your new president has called attention to the fact that no less an authority than Judge Knox is not in agreement with the point of view.

This is a society of medical jurisprudence, composed of physicians and lawyers, and I have not been able to understand why both of the professions represented have not risen up as one body to protest against the Volstead Act. Under the Volstead Act the old common law maxim that a man must be considered innocent until proved guilty is reversed; under the Volstead Act a physician is denied his right to trial by jury when arrested for an offense against the Act.

I do not know when I have been roused to such a pitch of indignation as wen I read the medical restrictions of the Volstead Act, not because laymen had nullified the therapeutic judgment of physicians, but because there is not a paragraph in it relating to physicians that does not contain the imputation that the medical profession is so dishonest that prohibition cannot be enforced unless the medical profession is restrained. That attitude appeared to some extent in Mr. Clark's address and has appeared in briefs submitted by Federal District Attorneys in cases arising from the Act.

Criticisms should be constructive rather than destructive. My principal criticism of the Volstead Act is that it was framed by men who know nothing about the practice of medicine. I think that all legislation affecting the medical profession, if it does not originate in the profession, should at least have the sanction of the profession before its enactment.

Dr. James J. Walsh: I have never taken out any prescription blanks, I may be frank in saying, because it is too much bother. There are possibilities of abuse in the use of these prescriptions to be sure, but I also feel that these regulations are an intrusion on our liberties as physicians. Alcohol has a definite place in therapeutics, and the question between vinous and malt liquors should be one for physicians only to decide. We have had a number of efforts made to enforce certain modes of therapy. Over 100 years ago the Legislature of New York offered $10,000—an enormous sum in those days—for a new cure for hydrophobia. Just think of having a cure for hydrophobia handed over to the medical profession and their being told to go and use it! That is what Congress did in passing the Volstead Act. One hundred years from now people will be laughing heartily at the idea of a legislative body making itself so absurd. We must not allow our rights as practicing physicians to be taken away in that manner.

Mrs. Martha M. Allen: I have been for 29 years the national superintendent of the Women's Christian Temperance Union and have been especially interested in the subject called medical temperance. The *Journal* of the American Medical Association, whenever it has been asked questions as to the bibliography has been kind enough to say that my letflets on the subject of alcohol in medicine were the best in brief form of anything brought forth in the United States. I have sent out appeals in years gone by to the medical profession to help the work along of teaching women not to use alcoholic liquors as family remedies and have had much help from physicians.

Years ago I began the fight against alcoholic patent medicines before the law was passed compelling them to print the alcoholic content on the labels. I think that when Dr. Chalmers introduced that resolution before the House of Delegates of the American Medical Association last year he did a splendid thing. You doctors would have no trouble with the Volstead Act if the whole medical profession would do what Dr. Chalmers calls for.

For example, some doctors in some places before Christmas time gave out hundreds of prescriptions in two or three days. It is that kind of doctor that has made the trouble for the whole profession. I am certain that if the medical profession would deal with the doctors who do that kind of thing you would find it the easiest thing in the world to have your own way in respect to how much alcohol you wish to give a patient.

As another example: at Fort Williams thirteen prescriptions were issued during three months when it was necessary to send some distance for the whiskey. Then the Government established a dispensary there and in one month there were 10,000 prescriptions written. There are many physicians who write far more prescriptions than should be written and that is where the trouble has come from. Ross Miller tells me 95 per cent. of the prescriptions written by doctors are for beverage purposes. When Congress made that law, twenty-four states had laws not allowing doctors to prescribe liquor. The law in Kansas came from the medical profession and was urged so that the onus of the liquor traffic would not fall on the medical profession. In the same way the law came to Utah. It came on the advise of some of the leading doctors.

I have here a leaflet giving opinions of professors of medicine that they have given me, I will read a few of them. Dr. Oliver T. Osborne, Yale Medical School says: "Whiskey, brandy and strong wines are not needed in the treatment of diseases or diseased conditions." Dr. Victor C. Vaughan says: "In my opinion, and in this I am sure I have the support of the best of the medical profession, alcohol is not needed in the treatment of any disease." Dr. J. J. Abel, Johns Hopkins, says: "I do not consider alcohol indispensable in medicine." Dr. Richard C. Cabot, Harvard Medical School, says: "Well trained clinicians are practically unanimous that alcohol has no use in the treatment of infectious diseases." Dr. W. A. Bastedo, New York, says: "It is an almost universal opinion in this school that alcohol is required in medicine very little." Dr. Joseph L. Miller, Rush Medical College: "It is my opinion that the practice of medicine can be carried on without the use of any alcoholic beverages." There are many others that I have not time to read to you.

In closing I may say that Dr. Joseph F. Miller and Dr. Oliver Osborne have corresponded with me on this subject, and though they have said they think I have gone too far, I think that they as well as Dr. Chalmers and the other physicians present this evening will eventually come over to my opinion that alcohol should not be prescribed by the medical profession under circumstances that exist at the present time.

Walter Jeffreys Carlin, Esq.: It is really rather a shock to me to find myself following so closely in the footsteps of the Womens Christian Temperance Union; I was never in that position before. Further than that, I was shocked, as a mere lawyer when I heard one of the speakers, a physician, complain this evening that it took seven minutes to write out a prescription for whiskey. I am a very busy man, but I would devote seven minutes any time to this purpose if they would let we write prescriptions.

Speaking seriously, I was hoping we would learn this evening what is the present status of the Knox decision. As a legal question it is a very interesting one to me. Those of you who know what we had in this country before national prohibition will realize that the states that wanted to be dry were just as dry as law could make them. It was not only a crime to sell liquor or to have it in ones possession, but to transport it into those states. Therefore if the national prohibition amend-

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Disease and Development

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"Development, in biology, is the same as evolution." (The Century Cyclopedia and Dictionary).

"Development", is, "the sequence of organic changes, by which the vitalised ovum becomes the mature animal or plant." (Gould Dictionary) for "ontogeny is a brief recapitulation of phylogeny."

"Ontogeny[1] is a short and quick recapitulation of the slow and gradual paleontological development, or phylogeny."

"Development[2] is primarily central. All organic forms of which the entire history is known, set out with a symmetrical arrangement of parts round a center." "From central development we pass insensibly to that higher kind of development for which axial seems the most appropriate name."

"Development { Central { Unicentral / Multicentral ; Axial { Uniaxial / Multiaxial."

"The whole germ product may arrange itself round a single axis, or round many axes. There is no known vertebrate in which the whole of the germ-product is not subordinated to a single axis. "The axis,"[3] is, "the straight line, real or imaginary, passing through a body, on which it revolves, or may be supposed to revolve; mathematically; a straight line with respect to which the different parts of a magnitude are symmetrically arranged; botanical, the central part or column of a plant, around which the other parts are disposed, corresponding to the vertebral column in the higher orders of animals", (Webster Dictionary). "The axis", is, "the motionless, or relatively motionless, imaginary line about which a rotating body, such as the earth turns; specifically called in this sense the axis or revolution or rotation"; also, "the axle of a wheel; the entire vertebral column; the central or axial nervous system of a vertebrate", (Century Dictionary and Cyclopedia). "Any line with reference to which the physical properties of a body, especially its elasticity are symmetrical", (same,) Spencer has shown that there are three main axes, perpendicular to each other; one in the mesial, one in the coronal, these are longitudinal; and one in the transverse middle plane, and that bodies can rotate on these axes at different times. So,[4] all development, and evolution may be said to be axial, from the central axes outward. "Axial (skeleton), is, "the skeleton of the trunk and head and tail", (Century Dictionary and Cyclopedia).

"A modification which arises at an early stage of growth tends to influence the subsequent development of the same part, as well as other and intimately connected parts. This may constantly be observed with monstrosities in the animal kingdom; and that, as with plants, the axis cannot become monstrous without it in some way affecting the organs subsequently produced from it, so axial anomalies are almost always accompanied with deviations of structure in the appended parts."[5] Stated conversely, of normal and abnormal, (diseased), peculiarities, in plants and animals: normal and abnormal variations of organs and structures are almost always preceded by some peculiarity of the main axis of the organism.

Apparent exceptions to the rule that almost all peculiarities, normal and abnormal, in plants and animals, are almost always preceded by peculiarities of the main stem or trunk, are easy to find; but careful examinations of hundreds of peculiarities, normal or abnormal, in plants, animals and men, are convincing that such exceptions are *apparent* only to the superficial observer, when critically examined such peculiarities are secondary to, or a part of, the same malformation which accompanied the malformation of one of the axes of the organism. For, a motion or motions, which malform the axes may malform all the parts through which the axes pass. Flexures, extensions and rotations of the axes or torso malform all parts through which the forces pass.

If the malforming motion is temporary the malformation is temporary; when the body remains permanently, by adhesions, or habit, in the malformed position, obviously it remains permanently deformed. In the axis, the central column of plant and animal, Darwin, Spencer, Gray and Moquin-Tandon have given us the centre-piece of a Chinese puzzle. By adding the other figures to the known central figure, they were rapidly solving both evolution and disease. But death disarranged their reconstruction of the figures in relation to this centre-figure, the axis, at the very moment of their success.

So, of a thousand or a million puzzle-blocks, presented by evolution and disease, the haphazard method of trying to fit these together beginning from the outside of the organism, the chances of solving are one in a thousand, or one in a million; and the greater the knowledge of them the less wisdom and success. But given the centre-piece, the main axis or axes of the organism, the success of fitting the other pieces in their proper order is only a question of time.

It is so well known to botanists, that stems, etc., are leaves rolled up, and that the leaf is the unit system by which all other parts above ground are but modified leaves, that no references will be given for this statement. The stem is a leaf or leaves rolled up into a spiral. "The stem is the axis of the plant, the part which bears all the other organs. Branches are secondary stems, that is, stems growing out of stems. The stem at the very beginning produces roots, in most plants a single root from the base of the embryo-stem or caulicle." Even the root might be said to have been derived from leaves, cotyledons, and is likewise a stem. For, "as this root becomes a descending axis, so the stem, which grows in an opposite direction is called the ascending axis."

Rising out of the soil, the stem bears leaves; and leaf-bearing is the particular characteristic of the stem."[6] "Accordingly, just as a root-stock, or a tuber, or a tendril, is a kind of stem; so a bud-scale, or a bulb-scale, or a cotyledon, or a petal of a flower, is a kind of leaf."[7] "The mode of lobing or division

corresponds to that of the veining."[8] Morphologically, flowers answer to shoots or branches, and their parts to leaves."[9] "Pistils and stamens now and then change into each other in some willows; pistils often turn into petals in cultivated flowers; and in the double cherry they are occasionally replaced by small green leaves."[10] So stems are rolled up leaves, ascending; branches are rolled up leaves, lateralizing; leaves are stems unrolling, flowers are leaves or stems unrolling. All parts are but varying degrees of rolled up leaves called stems or subdivisions of stems: or unrolled stems becoming leaf-like or flower-like. All the peculiarities of plants can probably be explained through modifications of the axis or its subdivisions, from rolling up or unrolling of leaves, modified by environmental factors, which act upon the axis and its subdivisions.

Kinetogenesis

Cope's theory of kinetogenesis, or "mechanical genesis has been accepted so widely, especially by paleontologists and pathologists that it should be studied in some detail; it is thus defined: "The doctrine or hypothesis is that animal structures have been thus produced directly or indirectly by animal movements." "Organic form is the result of motion. Motion takes the direction of least resistance. Therefore organic form is the result of motion in the direction of least resistance. Motion under resistance takes a spiral direction."[12] Then the spiral direction must be the direction of least resistance. So, "Organic form is the result of motion in the spiral direction." So, "Throughout the whole of organic nature the spiral form is more or less distinctly marked."[12]

In regard to the spiral Swedenborg said, "Thus it differs in every genus and species of living creature; and in the minutest animalculae. It is in the essential form of motion or of the fluxion of organic substance. It is also capable of transformation into infinite forms; * * * of adapting itself to every space, * * * and hence this form derives the power of infinite variation, * * * thereby it is capable of accommodating itself to all circumstances and to all kinds of use."[13] "Variation is the cornerstone of evolution."[14] And, "Adaptation is the true cause of every modification."[15] For plants, at least, Darwin has coordinated all these views. He shows —as do the others quoted—that all the peculiarities of plants can be explained through spiral movements[16] of their axes, the stem and root. So that all that has been said in this monograph can be explained, by spiral movement of the axes,[16] in plants at least if not in animals.

"Careful observations have shown that the tip of a growing root also makes little sweeps or short movements from side to side. Many growing stems have also a movement of nutation, that is of nodding successively in different directions."[17] Of growing seedlings, Darwin said, "The stems were always growing, so that in each case the circumnutating apex will have described a spire of some kind."[18] "The movements of various organs are all modified forms of circumnutation."[19] "In accordance with these conclusions, a considerable difficulty in the way of evolution is in part removed, for it might have been asked, how did all their diversified movements for the most different purposes first arise?"[20] So, it would follow that all the peculiarities of higher plants are brought about by spiral movements of the axis and its sub-divisions.

For, "The movements of various organs to the light, which are so general throughout the vegetable kingdom, and occasionally away from the light, or transversely with respect to it, are all modified forms of circumnutation; as again are the equally prevalent movements of stems, etc., towards the zenith, and of roots towards the centre of the earth. Until recently the cause of all such bending movements was believed to be due to the increased growth of the side which becomes for a time convex; that this side does temporarily grow more quickly than the concave side, has been well established; but De Vries has lately shown that such increased growth follows a previously increased turgescence on the convex side. With the radicles of seedlings, the tip is sensitive to various stimuli, especially to very slight pressure, and when thus excited, transmits an influence to the upper part, causing it to bend from the pressed side. On the other hand, if the tip is subjected to the vapor of water, the upper part of the radicle bends towards this side."[20]

Whether the movements of plants are due to increase of growth on one side or the other, or up or down; or whether they are due to external or environmental influences, they can be harmonized by saying that: all of the peculiarities of plants are brought about by spiral growth movements of the axes, adapting their peculiarities to those of the environment; or that the environmental peculiarities cause plant peculiarities by spiral growth movements, of the axes.

Perigenesis

"The theory of perigenesis endeavors to explain the nature of inheritance by a simple, mechanical principle, namely by the well known principle of *inherited motion*." "I assume in every process of reproduction that not only the peculiar chemical substance,—but that the special form of the molecular motion which is connected with its physical, chemical or nature, is also transmitted."[21] Of inheritance and adaptation, Haeckel says, "Every naturalist acquainted with physiology knows that these two phenomena are directly connected with the functions of propagation and nutrition, and, like all other phenomena of life, are purely mechanical processes of nature, that is, they depend upon the molecular phenomena of motion in organic nature."[22]

If two chemical experiments were exactly alike, under similar conditions, the results would be similar. When an ovum, fertilized by one spermatazoon, divides into two ova, the resulting twins would be similar, provided their implantation in the uterine mucosa were the same. Different human ova, or different spermatazoa, or different uteri would give dissimilar children. Supposing now, the spiral motion of circumnutation were transmitted directly into the ova and pollen, as a continuation of the stalk that bore the ova and pollen; and supposing that the ova were so arranged that they took the same spiral in the ovary, if planted into similar soils, they would circumnutate the same way and all the seedlings would resemble each other and the parent. If any of these conditions were changed, the seedlings would vary from each other and from the parent. So few physico-chemists have studied evolution, and so few evolutionists have studied physico-chemistry, that no citations on inherited physico-chemical movements are available. If the protoplasm of the seedlings were similar to each other and to that of the parent; and if the environment were similar in all; then their reactions, their movements would be similar. In this way would be explained that, "at what-

ever period of life a peculiarity first appears, it tends to reappear in the offspring at a corresponding age, though sometimes earlier."[23] "The inheritance of habitual movements is a necessary contingent for this process of selection, or the survival of the fittest; and we have seen good reason to believe that habitual movements are inherited by plants."[24]

"It is impossible not to be struck with the resemblance between the foregoing movements of plants, and many of the actions performed unconsciously by the lower animals."[25] For example: filaria sanguinus hominis, the blood-worms of man, exhibit most varied movements; the ends of these worms wind their way in and out among the blood corpuscles, without much onward progress. These movements serve the purpose of searching the environment for nutriment, just as the growth-movements of circumnutation of plants search the environment for liquid nourishment in the case of the root; or for sunlight or for support in the case of climbing plants," "feeling out every distance within its reach for possible supports on which to climb."[26] "There are really, after all, only two main influences which enter into the makeup of life; only two influences which we need to direct, in order to change and control the characteristics of any individual growing thing. The first of these is environment; and the second is heredity, which is the sum of all of the environments of a complex ancestry back to the beginning."[27] This surely includes the intra-uterine environment of embryos. "Either there has been inheritance of acquired characteristics or there has been no evolution."[28]

The embryo frog, entering the water acquires gills, tail, and fins by moving in a new environment. As it emerges from the water, it loses it gills, tail, etc., while its swim-bladder is converted into lungs, its fins into limbs, all due to movements in a new environment.[29] The human embryo, after the accumulation of the amniotic fluid acquires, branchial clefts, a tail and a fish-like appearance, due to its movements in a new environment. When the amniotic fluid is relatively diminished because the fetus enlarges; the human embryo loses its tail, its branchial clefts and acquires frog-like limbs after the tadpole environment is lost. All these are due to repetition of the movements of ancestors under similar conditions of environment. The embryo "inherits", i. e. acquires again, the movements of its ancestor, under similar environments at a similar stage. His protoplasm resembling that of the fish-like and amphibian ancestor escaped from the egg, must react the way his ancestor did at "a corresponding age or stage, though sometimes earlier."[30] But hereditary diseases and some other facts make me believe that the rule has a wider extension."[31] "All modifications of the organism to new, i. e., abnormal conditions are pathological products"[32]: as well for spermatazoa, ova, embryo, fetus as for the youthful.

Movements in Embryos, Seedlings, etc.

Of inheritance and adaptation. "Every naturalist acqainted with physiology knows that these two phenomena are directly connected with the functions of propagation and nutrition, and, like all other phenomena of life, are purely mechanical processes of nature, that is, they depend upon the molecular phenomena of motion in organic matter."[33] "Organic form is the result of motion. Motion takes the direction of least resistance. Therefore organic form is the result of motion in the direction of least resistance."[34] "I assume in every process of reproduction that not only the peculiar chemical substance, the plasson or plasma, of the producing organism is transmitted to the produced organism, but to that special form of the molecular motion which is connected with its physical, chemical nature, is also transmitted."[35] "The theory of perigenesis endeavors to explain the nature of inheritance by a simple, mechanical principle, namely by the well-known principle of inherited motion."[36]

"Cope's theory of kinetogenesis of "mechanical genesis" has been accepted so widely, especially by paleontologists and pathologists, that it should be studied in some detail" (op cit). "Kinetogenesis is thus defined: "The doctrine or hypothesis that animal structures have been produced directly or indirectly, by animal movements."[37] "The movements of various organs to the light, which are so general throughout the vegetable kingdom, and occasionally from the light, or transversely with respect to it, are all modified forms of circumnutation; as again are the equally prevalent movements of stems, etc., towards the zenith, and of roots towards the centre of the earth." "In accordance with these conclusions, a considerable difficulty in the way of evolution is in part removed, for it might have been asked: how did all their diversified movements for the most different purposes first arise?" "As the case stands, we now know that there is always movement in progress" (no movement no progress), "and its amplitude, or direction, or both, have only to be modified for the good of the plant in relation with internal or external stimuli."[38] "The inheritance of habitual movements is a necessary contingent for this process of selection, or the survival of the fittest; and we have seen good reason to believe that habitual movements are inherited by plants."[39] "Finally, it is impossible not to be struck with the resemblance between the foregoing movements of plants and many of the actions performed unconsciously by the lower animals."[40]

Developmental movements have been described in seedlings by Frank, Sachs, Wiesner, Darwin, and Gray. They have been shown to be the cause of most if not all of the variations, peculiarities, monstrosities and the predisposing factors to disease in plants by Darwin. When they are adapted to the environment they cause the variations which are naturally selected; when they are badly adapted to the environment, they are the cause of those variations which are eliminated by disease and death, as shown by Darwin.

Movements in animals have been shown to be the main cause of these variations which in animals are naturally selected in the survival of the fittest, by Darwin, Haeckel, Spencer, Cope and Lull.

Movements in chick embryos were recognized to occur by M. Serres, "Principles of Embryology", by Isadore Saint-Hilaire, "History of Anomalies", and to be the cause of inverse symmetry when inverted, and of ordinary bilateral symmetry when not inverted by Serres and Saint-Hilaire. The cellular movements as well as the gross movements have been recognized to be the cause of the variations in snails by Conklin, Davenport and Kellicott. The gross movements of snails were claimed by Huxley, Lankaster and Kingsley to be the cause of their peculiar nervous and other variations. Movements in frog embryos were described by Agassiz, Louis; "His Life and Correspondence", p. 42, June 20, 1827. Movements in frog embryos have been seen by Clark, Eyedeshymer, Assheton, Wilson and Goodale, "De-

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Ductless Gland Therapy

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For the past decade or more, particular attention has been directed to the importance of the ductless glands, not only to the growing recognition as an etiological factor of diseases, but as to their therapeutic value.

The glands belonging to the internal secretions are the thyroid, parathyroids, thymus, supranenals, hypophisis, the pineal gland, ovaries, testicles, pancreas, and possibly the placenta and corpus luteum.

The thyroid apparatus in addition to the thyroid and parathyroid glands, includes a number of accessory glands, sometimes present, and varying in number within the triangular area, having the apex at the root of the aorta and the base corresponding to the inferior jaw.

It has been shown that the thyroid is a disintoxicating organ, the function of which is to destroy poisonous products formed by the composition of albuminous food substances. The Thyroid influences metabolism, assimilation, oxidation, and conversion of food into energy. Sajous writes that it is well shown by the studies of Magnus-Levy, Salomon, etc. that the intake of oxygen in Graves' disease increases from 50 to 80 percent. Thyroid insufficiency gives a subnormal temperature, cold extremities, a doughy, dry skin, mental torpor or mental deficiency Next of equal importance are the adrenals which act jointly with the thyroid. It has been shown by observations of Epinger, etc., that the adrenals fail to raise the blood pressure after the thyroid has been removed. Their composition in addition to the ordinary extractives such as benzoic and hippuric acids, contain also pigmentary substances, which give a reaction of a green or blue color with ferri chloride. It is an interesting fact that the blood of patients affected with kidney disease contains the characteristic substance which gives also the reaction with ferri chloride as the adrenal pigmentary substances.

The deficiency of adrenal secretion will cause muscular weakness, emaciation, paleness, and a deficient hair growth, while deficiency of thyroid secretion will cause the hair to fall out and premature grayness. The deficiency of adrenal secretion will also cause slow intellectuality, freckles and pigmentation. There is no doubt that the adrenals have controlling influence upon the whole circulatory system. Their hyperactivity causes contraction of the small blood vessels, which raises the blood pressure, and still larger quantities of suprarenin in the blood will cause atheromatous condition of the arteries.

Brown-Sequard has shown that secretion of adrenals cause contraction of the heart muscle. There is an intimate connection of hypersecretion of the adrenals with arteriosclerosis, but there are other toxins and poisonous substances which may cause arteriosclerosis as toxins of spirochetae pallidae, Hg., alcohol, etc. It is reasonable to infer that these agents which have deleterious actions upon the adrenals and cause a hypersecretion, cause arteriosclerosis.

The thymus gland is looked upon as a temporary organ. Physiologists in former years gave the function of this organ as a manufacturing place of blood corpuscles. In animals, especially in hibernating animals, it serves for storing up materials, which being reabsorbed during the inactivity of the hibernating period may maintain the respiration and temperature of the body. Sajous shows that the deficiency of the thymus causes deficient development of the osseous system and epiphyses, low relative lymphocyte count and deficient mental development. It may be the underlying cause of dementia precox.

The pituitary body is situated in the sella turcica of the sphenoid bone. Its structure consists of two lobes, the anterior which is the larger, resembles the thyroid in structure, and a small posterior one. The effect of the pituitary substance on the uterus and unstriated muscular fibres is well known. The pituitary body is also a carbohydrate regulator. It stimulates the breaking down and elimination of products of starchy foods.

It has been shown by the researches of Pineles and Sajous that all glands with internal secretions are closely related to one another. Thus, degeneration of the thyroid is followed by that of the pituitary body and vice versa. It is a matter of clinical fact that those substances which are harmful to the adrenals and cause arteriosclerosis are also harmful to the thyroid. But, the adrenals increase blood pressure while the thyroid diminishes it. Observations have clearly sustained a connection of the pituitary body with the thyroid. There is the case of Madeling showing a colossal obesity in a girl, nine years of age, after a gun shot injury of the pituitary body, and it is explained by Sajous that the posterior lobe contains a nerve center which is governed by the functional secretion of the thyroid which controls obesity by the process of oxidation.

The pancreas, which is the regulator of equilibrium of metabolism, contains in its structure the center—acinar cells of Langerhans, the nature of which is still studied by investigators and it is more known now than the older physiologists taught us. The partial destruction of the pancreas does not produce definite symptoms, because the uninjured part is able to take care partly of the functions of the whole gland. When the pancreas is completely removed there may still be formation of glucose, but as the island of Langerhans becomes diseased, then glycosuria will result, as shown by Opie. This is not a hypothesis but a certainty that there is a relation between the island of Langerhans and diabetes mellitus, as it is shown by the discovery of insulin.

In diabetes, is often found changes in the thyroid; amenorrhea and impotency are frequently met with, which shows again a close relation of diabetes with the internal secretory glands. But the most important for oxidation of sugar is probably the production of the internal secretion by the island of Langerhans, which converts the starch foods, and carbohydrated radical of the albuminous molecules.

I noticed, and also confirmed by the observation of other writers, as Lorand, that persons suffering from a milder form of diabetes often look healthy, sometimes pretty in appearance and even younger than their age. This is due to the hyperactivity

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of the thyroid, which in diabetes contains an enormous amount of colloidal substances. But, as the disease advances there is extreme emaciation. The great loss of sugar which is a valuable heat and energy agent must be compensated in some way in the struggle for existence, and this is done by the destruction of the albumin of the body to an excessive degree. By the destruction of the internal secretion of the ductless glands, the equilibrium of metabolism is disturbed, hence, the metabolic diseases in general. The ductless gland secretions possess very energetic antitoxic properties as shown by Prof. Charrin, the destruction of which readily exposes the person to infectious diseases. It is well known that diabetics acquire tuberculosis very often, as do persons suffering from myxodema.

I often wondered why obesity occurs during convalescence after infectious diseases, and I found the explanation as given by the French Congress in 1914: that during the course of infectious diseases with fever the activity of the thyroid is increased and loss of weight occurs, while during convalescence the thyroid is exhausted and there is less or no activity, then obesity follows.

As I pointed out before the pancreas takes part and has an influence upon phygocytosis and so is the thyroid exercising its power upon phygocytic production. Sajous in 1907 pointed out that the thyroid secretion is the agent which Wright termed "opsonin."

The relation of the chain of ductless glands and the influence their secretions exercise upon metabolism will explain idiosyncrasies of many persons to different foods and drugs. Some persons are susceptible to strawberries, for instance, which may produce fever and urticarial eruption; some are very susceptible to the smallest dose of arsenic, camphor, etc. People who have healthy, ductless glands will have their anabolic and catabolic processes go on normally and their systems will be able to fight any invasion of toxins, while people whose ductless glands are exhausted or injured by infectious diseases, heredity, etc. will be powerless to fight any attack; their metabolism will be unprotected and they will be more susceptible to diseases.

The ovaries are next for consideration. Each ovary is connected by its anterior margin to the broad ligaments, by its inner extremity to the uterus by a proper ligament; by its outer end to the fimbriated extremity of the Fallopian tube. The ovary is abundantly supplied with blood vessels and has imbedded in it, in various stages of development the Graafian follicles. Immediately before, as well as subsequent to rupture of a Graafian follicle and the escape of the ovum, certain changes ensue in the vescicle, which produce a yellowish mass, termed corpus luteum.

Hare states, while it may be true that the ovary in situ produces an internal secretion, which modifies the function of all women during child-bearing period, as well as before and after that period, it would seem that the effect it produces, is not so much of the ovary itself, as the absorption of products from the corpus luteum. Like other ductless glands, the corpus luteum possesses a very rich blood supply, which especially reaches the active lutein cells, whose lipoid secretion thereby directly enters the blood current.—(Bartelmez). The corpus luteum plays the most important role in ovulary implantation and in early embryonic development. It stimulates also mammary development or as O'Donoghue puts it, it influences mammary secretion.

There is a close relation between the ovaries and the thyroid. In Graves' disease we find frequently disturbance of menstruation and atrophy of the ovaries. We find very often enlargement of the thyroid during pregnancy and some authors state that sexual excess may cause enlargement of the thyroid. We notice obesity in young women after a complete ovariotomy as well as women in the menopause.

The influence of internal secretion upon the size and skeleton of the body can be demonstrated by Roentgen-rays examination of myxedematous patients, that there is a retardation of ossification and a persistence of the epiphyoseal cartilage. It has been shown by Prof. Hagar that there is a close relation between the condition of the ovary and the heart. We well know the altered condition of the heart in fibrous myomata of the uterus. There is also a connection of the ovaries with the digestive organs. Many dyspeptic troubles have been cured by the correction of a retrodisplacement of the uterus. We meet often complaints of sluggish digestion in cases of dysmenorrhea.

Now that it is demonstrated beyond a shadow of doubt that the ductless glands control metabolism and act as protectors of the body by their relation with one another, let us discuss the therapeutic value of their substances. Among the diseases I treated were a great number of women who either reached the menopause by age or had been operated for various troubles and the ovaries removed. I came to the conclusion that the ailments during that period are due to the deranged condition of the chain of the ductless glands. The increase of adipose tissue, the disturbance of carbohydrate metabolism, insufficiency of kidney function, etc., are the results of the disturbance of these glands.

The following cases are examples of the different types treated:

Case 1. Mrs. A. L., 48 years of age, Austrian, widow, 205 lbs., had two children, both dead. One miscarriage 15 years ago. Ceased menstruating two years ago. She suffered from constipation, excessive thirst, headaches, pruritis vulvae and excessive micturation. She had pain in the lower extremities, especially on the right side from the lower portion of the femur to the calf-muscles. She had a swaying gait from side to side and at times could not walk at all. On physical examination I found: heart and lungs negative, tenderness in region of gall-bladder, tenderness in region of the appendix. Her legs were very edematous and painful to touch; marked varicosity of both legs. The vulvar region very inflamed and sore; a pendulous abdomen and visceroptosis; the adnexia comparatively normal, with the exception of prolapsed ovaries, her blood pressure comparatively high. Urinalysis showed albumin, low percentage of urea, sugar 3½ per cent. Under antidiabetic treatment sugar in urine and blood was reduced, and at times entirely absent, and her symptoms ameliorated. Then I started the ductless gland treatment, giving first intravenously pituiterin, whole lobe, ovarin and adrenalin. I afterward substituted corpus luteum for ovarin and added thyroidin.

Results: Her pain disappeared, she lost from 25 to 30 pounds and is now able to attend to her duties. She walks with comparative freedom; feels and looks younger than her actual age. Sugar will show up on urinalysis at times if she is not careful about her diet. The explanation of this case is, that the patient was suffering from a deranged condition of the chain of ductless glands, which presented during the menopause period. There was an unbalanced metabolism which is governed by the secretion of these glands. The polyglandular substances, together with the regulation of the diet and general mode of life, resulted in restoring the patient to a better state of health and the disappearance of the symptoms.

Case 2. Mrs. N., about 60 years of age, Russian. Cessation of menstruation 15 years ago. She bore a great number of children and was always a healthy, hard working woman. For several years she suffered from diabetes mellitus, and had all the symptoms of an advanced case. Her sugar percentage was between 3 and 6 per cent. She was very weak and emaciated. Urinalysis showed albumin and hyalin cast. She suffered pain

in the gall-bladder region and a burning sensation on urination. For many years she suffered from constipation and frequent urination, especially at night. On physical examination I found muffled sounds of the heart and a presystolic bruit at the apex. She had a great deal of tenderness on the right side of the abdomen from the 12th rib to the anterior-superior spinous process of the illium. She had moderate edema of the lower extremities and shoulders. I put her on a strict antidiabetic diet, alkaline mineral waters, and bromide of arsenic 2 drops, to increase to 5 drops in five days t. i. d. Patient felt much improved and I started the administration intramuscularly of polyglandular serum of the ductless glands. Her symptoms disappeared and she could attend to her household duties. Of course the diet and mode of living must always be regulated.

Case 3 is of another type entirely.

Mrs. A. 35 years of age, Austrian. Menstruates every four weeks, 3 to 4 days. Married 10 years, had a miscarriage one year after her marriage. Complained of headache, backache, constipation, loss of weight and pain in the sternal region. She had been coughing for the last three months and had bad attacks of asthma several times a day and very severe attacks at night. She was a rather stout woman, and on physical examination I found heart negative, and her chest a regular music box; one could hear all kinds of rales. Vaginal examination showed a retroflexed uterus, and salpingo-oopheritis dextra. I corrected her diet, started with an alkaline mineral water and gave her hypodermically adrenalin and pituitarin. Once a week I gave her thyroidin and corpus luteum intramuscularly. She received altogether thirty treatments. She was well enough to leave for a trip West with her husband and told me she felt absolutely well, and is well today.

Case 4 is about the same type with different symptoms.

Mrs. S., 39 years of age, born in the United States. Her menstruation was regular until 4 months ago. She flows very much from five to seven days and suffers from dysmenorrhea, and a moderate leucorrheal discharge. Married 18 years ago and aborted 17 years ago at the fourth month of gestation. Her complaints are of severe dyspepsia, constipation and backache in dorsal region. She is very nervous. On examination I found her very emaciated, pale, yellowish look, and is very anemic. She suffered from tachycardia, but no murmur audible. Pulse 125 and low tension. On vaginal examination I found a retroflexio-version of the uterus, salpingo-ooperitis sinistra. Enlargement of the lateral lobes of the thyroid and some exophthalmus. Rest and regulation of the diet were the first things to be done, then I started her on anti-thyroid moebus.

I administered intramuscular injections of corpus luteum and small doses of pituiterin, and later added pancreatin to her medication. Wassermann reaction and complement fixation test for gonorrhea, as well as vaginal smears proved negative.

This case was a complete success and patient feels well, and it is now quite a few years since her treatment.

Case 5. Miss B., 19 years old, American. Menstruation regular, suffered with dysmenorrhea. Complained of sleeplessness and was very nervous. On examination I found an enlarged thyroid, especially the lateral lobes, tachycardia and exophthalmus. She had to discontinue her work as a milliner because of her extreme nervousness. I started with moderate doses of corpus luteum intramuscularly and anti-thyroid moebus M. v. t. i. d. by mouth. She took 15 treatments of corpus luteum and was well enough to return to work. Her tachycardia disappeared and her general symptoms ameliorated.

I may add that corpus luteum intramuscularly or intravenously in Graves' disease is just as effective as thyroid in myxedemia.

Another class of cases I treated with ductless gland serum is rheumatoid arthritis chronica (Heberdane's nodositis). It is an obscure disease. The subject is made more difficult by the diversity of names which the text books use for one or another of the joint affections of the same category.

What is meant by rheumatoid arthritis is, that it is a multiarticular affection which occurs during middle life. It may occur in younger people but chiefly affects women during menapause. In its extreme form it may cripple every joint in turn, even the jaws and vertebrae until the patient is reduced to a pitiable condition of helplessness and deformity. In many a case it is plainly traced to some of the infectious diseases, and not to acute rheumatism only, as some think.

The condition of the affected joint can best be described as a productive inflammation. The pathological changes in the joints are chiefly the laxity of the ligaments and tendonous contracture of certain muscles; the synovial membrane is thickened and the capsule may become adherent to the overlying tissues and new fibrous tissue formed. The cartilage may become eroded and so expose the bone beneath it. In some cases the bones show changes of a rarifying osteitis. Deformities of the joints and ankylosis are the main conspicuous features in the later stages of the disease. A most prominent symptom aside from said deformities is the impaired nervous vitality, which is probably due to the toxins in the system which in their turn are due to previous infection or infections. In other words, the cells have not the vitality to appropriate their necessary nutrition to perform their function.

The following case is one of the most instructive and interesting cases of this disease. It is a sequel of typhoid fever.

Mrs. A., 33 years of age, American. Menstruation regular, lasts 5 days, suffered from menorrhagia and dysmenorrhea. Married 8 years. She was never pregnant, in fact she never had a satisfactory coitus for fear of becoming pregnant. A short time after her marriage she suffered severely from cystitis and suffered from painful micturation for a long while. She had scarlet fever, measles, chicken pox, etc. Three years ago she contracted typhoid fever, which kept her in bed a long while.

Present Condition:—She complains of stiffness and pain in the left knee joint, stiffness of right knee, right elbow and shoulder and stiffness of the neck.

Physical Examination:—Well built woman but very anemic, about 5 ft. 5″ in height, weighs about 114 pounds. Has Heberdan's nodositis on fingers of the right hand, edema of the legs. Heart and lungs negative. Marked stiffness and tenderness of the left knee joint, contracture of the tendons of the gastronemius and soleus. There was also a contracture of the right extensors of the fore arm. The trigone looked inflamed and the folds filled with mucus. There was tenderness over the right side of the abdomen, especially the region of the ovary. Vaginal examination disclosed the inflammation of both ovaries, especially the left, which was enlarged and tender. I prescribed alkaline mineral water, a vegetable diet, and started with intramuscular injections of polyglandular serum containing: Thyroid, gr. II; pituiterin anterior lobe, gr. 1/6; adrenalin 1-10000 sol., M. III; corpus luteum, gr. IV.

After each injection she had a very sharp reaction, becoming stiff, morose and unable to do anything for herself. Within 24 hours she felt relieved, could walk with some freedom and to express it in her own words, she felt "that new life had been put into her." After some treatment her bladder symptoms ceased, her nervous condition improved very much and she walked much better. As treatment advanced she progressed steadily psychologically and physically. At times she walks with perfect freedom. She can use her right hand and she attends to her duties without aid. The swelling of her fingers disappeared entirely, but the nodositis is still present.

This is a case which is a sequel of an infectious disease and a productive inflammation going on into the system. Wassermann test proved twice negative as did the complement fixation test for gonorrhea. Her menstruation improved, as she hardly suffers with dysmenorrhea and there is no menorrhagia. I tried massage, violet rays and electricity, but did not see any improvement at all until I started the ductless glands treatment. The patient, who is a very intelligent woman, told me that some physicians used *x-rays* before, which incapacitated her for a time and caused her ankylosis.

Irregularity of menstruation is another malady in which polyglandular serum is effective, especially in unmarried young women whose affection is not due to neoplasm, lesion of the adnexia, etc.

Miss F., 19 years old, American, unmarried. She started menstruation at the age of 14 years, was regular the first few months, then her menstruation retarded gradually. When I saw her she had not menstruated for eight months. On examination I found the uterus in a state of extreme antiflexion and smaller in size than any normal female of the same age. I started with pituiterin, the posterior lobe, in rather large doses, intravenously, together with corpus luteum. After a number of treatments she menstruated regularly for six months, then skipped one month and came to see me again. I then gave her several injections covering a period of five weeks. Since then, which is about two years, her menstruation has been regular.

I may add that I have been using placenta, mammary and thymus glands to stop uterine hemorrhage in menorrhagia and metrorrhagia with some success.

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The Nature of Acquired Characters

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A person is attacked by some disease, as the measles. The fact that he is attacked and gets the disease is evidence that he did not have, at that time, the power of resisting that disease. In due time he recovers. The fact that he recovers is evidence that, at the time of recovery, he has the power necessary to overcome the disease after it had secured lodgement. After recovery he has the power of resisting that disease so that if he is attacked again, such attack is without effect.

Here is a situation that requires consideration. At the time of attack he did not have the power necessary to resist such an attack, and after recovery he has a power he did not have before. That new power is an acquired character, and it is physiological and not morphological. It is also specific to the disease involved and not general for all diseases. This new power is not the product of the germs which produced the disease. It is the product of the process of fighting those germs. The germs are the environment of the cells which fight those germs, and this acquired character comes from the response to the environment and not from the environment itself. This acquired character is incorporated into and becomes a part of the individual who acquires it. It becomes a "character" of that individual.

A man goes into a gymnasium and swings dumbbells and Indian clubs, punches the bag, and exercises on the horizontal bars. As he continues to exercise, his muscles grow strong so that after some weeks or months he has powers he did not have before. He does not get these strong muscles by sleeping or living in the gymnasium. He gets them by his exercise, and he would get them just the same if his exercise was at some other place. It is the exercise and not the environment which makes his muscles strong. That increased strength is an acquired character, and it is physiological in nature.

Weismann cut off the tails of some mice. The wounds healed and the mice remained in a tailless condition Later he bred these mice and then cut off the tails of the progeny. Again the wounds healed, but nothing further occurred as far as those bobbed tails were concerned. He then bred this second generation and cut the tails from the third generation, with the same result. He continued the process of cutting off tails generation after generation, but nothing new occurred. The final generation had just as good tails as the first.

The ascidian, Ciona, is a small marine animal which has two tubes called siphons. Kammerer cut off these siphons as Weismann cut off the tails of mice. But these ascidians have the power of regeneration of lost parts. When these siphons were cut off they grew again, and in regrowing they grew a little longer than before. Kammerer cut off these siphons a second time, and in again regrowing they grew to be still longer. By repeated amputations and repeated regrowths those ascidians acquired siphons of great length. The animals were then bred, and the offspring had siphons of great length like their parents.

In both of these cases the effect produced by the environment was the same. It was the removal of part of the body acted upon by the environment. Such removal is purely mechanical. But the response to the environment was different. In the case of the mice, the only physiological result was the healing of the wound, and we were not told whether those wounds healed more or less rapidly in later generations. Weismann limited his investigations to the possible biological inheritance of a non-biological product.

In the case of the ascidians, the wounds were not healed in the same way that they were healed in the mice. The ascidians had gone through the process of growing siphons during the period of original growth, and when these siphons were cut off the animals went through the process of growing them again. Such regrowth involves the physiological process of cell division and assimilation, and is a process of exercising those powers. Exercising powers increases them, and in this case we see the result in longer tubes.

There was here an acquired character which was inherited. Shall we say that the long siphon was this acquired character? We may so say for convenience in description or illustration, but it would not be quite correct. An acquired character is some thing developed by the exercise of the thing developed. The length of siphon was not obtained by exercising the siphon itself. The thing exercised was the power of growth, and because this power was exercised repeatedly in one generation instead of once in each generation, it was developed to something greater than before. The long siphon was the product of the acquired character, and not the character itself.

We may see this better by a consideration of a different kind. A cow will produce a certain quantity of milk when she has her first calf. If she is regularly bred and regularly milked, she will produce a larger quantity of milk when she has her second calf, a still larger quantity when she has her third calf, more yet when she has her fourth calf, and so on up to at least her tenth calf. Here is the continuous development of a power by continuous exercise. The increased quantity of milk is not the character acquired. It is the product of that character, but it may be used to measure the amount of the acquirement. The real acquired character in this case is the development of the milk producing power.

The acquired milk producing power developed in the parent is inherited by offspring the same as is the developed power of growth in Kammerer's ascidians. There are two ways of arriving at this conclusion. One is a general consideration of the fact that cows with great milk producing power are descended from wild stock having only small powers, and the other is the investigation of concrete cases to see what happens under known conditions.

In the former of these there are two possible explanations of how cows of great milk producing power can be descended from cows having small power. One involves the development of powers in the parent by exercise, and the subsequent inheritance of such development by offspring. The other involves the assumption of a capricious Creator in-

terfering in reproductive processes. This last is evident from the fact that we are here considering an increase of power and not a mere shuffling of the cards. It is one of the characteristics of power (energy) that when left to itself it always dissipates. It can be increased (we say "developed" in living things) only by the performance of work, or by the interference of some Creator.

In the investigation of concrete cases, I compared different lines of descent from the original Holstein-Friesian cattle imported into this country. One branch of this work consisted in determining what had occurred in the breed as a whole from the time of importation to the time of investigation. The other branch consisted in determining what occurred in those lines of descent which had produced the greatest improvement over the original importation. It was found that the improvements came through the calves produced by mature dams and not through the calves produced by young dams. The offspring inherited improved powers provided the dam had developed those powers before the offspring was produced, but not otherwise.

When a man takes up training in a gymnasium, or elsewhere, we may determine the amount of his acquirement by measuring his physical strength, but we have no breeding experiments in man which will enable us to determine the inheritance of this character. However, we have the same thing in trotting horses, and by breeding and racing records we may determine the inheritance of acquired muscular development in those animals. A few examples will serve the purpose.

The horse Almont was born in 1864 and lived twenty years. He was raced at the ages of four and five, and from then on he was driven regularly in harness until he was ten years old. He was then sold to a man who kept him solely for breeding purposes and did not drive him. Almont had many sons and daughters who produced standard performers. Going from those grandchildren back to the grandsire, it was found that Almont was best as a sire at ten years of age. Those sons and daughters sired by him much before or after that highest point of his physical development were much inferior as transmitters of trotting power.

Belmont was born in 1864 and lived 25 years. He had some training when young and was driven considerably during the first half of his life. During the last half he was almost exclusively in the stud, and not worked at the trot. Going from his grandchildren back to Belmont in the same way as before, it was found that his most important progeny were confined to eleven years in the central part of his life, and that he was at his best in the two years which include his change from physical activity to physical idleness.

Happy Medium was born in 1863 and lived 25 years. He was raced at five and six years of age, and driven some later. At sixteen years of age he was sold to the owner of Almont who never drove stallions. The important sons of Happy Medium were got within the space of six years, the center point of which is the date of transfer from one owner to the other.

Dictator was born in 1863 and lived 30 years. He was "worked" up to 1875. The only sons of his which amounted to much as sires were conceived in 1876. He died in 1893.

Volunteer was born in 1854 and lived 30 years. He was driven "abusively" on the road in his younger years, and it was not until 1872 that it was discovered that he was valuable as a sire. He was retired and lived happily ever after in the harem. The only unraced sons of his which amounted to anything as sires of performers came from stud services of 1872 and 1873.

Harold lived 29 years. In youth he was an all-around drudge, and became the sire of Maud S. by accident. When that daughter showed speed on the track, he was relieved from drudgery and put in the stud. The nine sons of his which were superior to all others were got in the next eight years.

Among the grandchildren of these six horses were more than 3,000 standard performers, and that 3,000 was more than one-sixth of all the standard performers that had been produced in the breed up to that time. That is a pretty fair sized sample, and it shows that a horse's power of transmitting trotting speed to his grandchildren is measured by his own physical development at the time the transmitting occurred. His value as a sire continues to increase as long as his activity continues, and that value begins to decline as soon as he changes from an active to an inactive life.

While we do not have such precise information in regard to the inheritance of acquired immunity, still there is not a total absence of data. Measles is not a serious disease to the white child whose ancestors for many generations have had that disease, but it is deadly when first introduced among natives in other parts of the world. In fact the white man has many diseases to which he is highly resistant, but when these "white man's diseases" are introduced among the natives of Polynesia and Australasia, those natives become practically exterminated. Resistance to any particular disease is specific to that disease, and there is no way to produce a specific power of resistance except by contact with the disease involved.

Autopsies show that the great majority of persons at some time in life have been attacked by tuberculosis and have recovered without being aware of the attack. In this process, the person attacked develops a power of resistance he did not have when first attacked, and the new power of resistance is an acquired character. It will be evident that the older a person is, the greater is the probability that he will have made this acquirement. At the Crossley Sanatorium at Frodsham, England, they made an investigation into the incidence and seriousness of tuberculosis among the different children of families. The result may be seen in the following table.

Tuberculosis by Birth Order

Child	Normal Number	Observed Number	Percentage Tuberculosis
First	67.0	113	168.64
Second	64.4	79	122.70
Third and Fourth	109.4	93	85.01
Fifth to Seventh	98.3	75	76.30
Eighth and later	41.9	21	50.20
	381.0	381	

This table means that in the community where this investigation was made, of 381 children, 67 would be first children, 64 would be second children, and so on. But observation did not show that distribution of tuberculosis in offspring. What it did show was that later children are much more resistant to tuberculosis than earlier ones are.

1542 Monadnock Block.

Treatment of Diseases of the Heart and Their Complications

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There are three elements in the problem of treating the diseased heart. Two of them are structural and the third functional. We must consider the condition of the heart muscle, the degree and kind of valvular involvement and the disorders of the heart beat.

In the order of importance we would put the third in the middle. The first is the condition of the heart muscle, the second, the integrity of function and the third, the nature of the valvular involvement.

A moderate non-progressive leak does not put any particular burden on the heart muscle. The amount of blood lost in perhaps fifty beats is made up by an extra beat that is well within the reserve strength of the heart. The difference of the burden is about the same as the difference in force expended by a person who walks exactly down the middle of the sidewalk and one who happens to walk, first on one side and then on the other and thereby wastes one or two steps.

The reason that leaks have such a bad reputation is that very often they are progressive expressions of infection that is going on and involves the muscle itself as well as the valves. When the heart muscle is impaired we have, indeed, a difficult problem. It is very much the same problem as is met in restoring a person with muscular rheumatism to full agility, or taking a weak person and making them fit for a boxing match.

The myocardium is a group of the muscles of the body and if you have a prejudice against exercise, as a restorative measure in regard to the heart muscle, leave the heart out as much as possible and put all the rest of the flesh in the best possible condition of health and you may be sure that the heart muscle will participate. Hence, the value to heart sufferers of baths, exercises and everything that tends to restore the strength and symmetry of the body.

The very sickest heart patient can take some form of exercise, even though it be only the moving of one arm, when the motion is resisted gently by a trained attendant. And certainly there can be no harm in keeping the skin in perfect order. Of course, exercise is only applicable when we have reason to believe that there is no inflammatory process going on. No one would think of treating a person by exercise at a time when he was short of breath, or continuing the exercise beyond this point. The needs of the body as a whole require that exercise be taken up to the point of cardiac tolerance. There are not a few invalids who might be restored to a fair degree of liberty by graduated exercises, hydrotherapy, psychotherapy.

Next to exercise and also combined with it, the best method of dealing with a weak heart muscle is the continuous use of small doses of digitalis over long periods of time. The continuous use of small doses of digitalis is particularly indicated where there is a history of one or two attacks of heart failure, using this term as synonymous with decompensation.

There is great individuality in the reaction of people to digitalis and one of the first things that the heart specialist does in undertaking the care of the heart patient is to determine what that person's reaction to digitalis is and this is for ever after a consideration in his treatment.

The fear that digitalis may do damage to the heart by causing strong contractions that will tear the heart muscle or rupture a blood vessel is founded on theory rather than on observation. It is very flattering to the drug to attribute to it such abilities.

Rheumatism, syphilis and the streptococcus viridans are the evil genuises of the heart. All three are extremely insidious in their work, although part of the time inflammatory rheumatism makes an open and frank attack.

For many years rheumatism has been regarded as the great cause of heart disease. But under modern conditions of life, in America at least, acute inflammatory rheumatism has been much diminished in frequency and we meet more often the type of infection typified by the streptococcus viridans.

We are gradually commencing to appreciate that at least ten per cent of heart patients get into trouble from syphilis, and ten years ago it became a general routine practice to examine persons with aortic disease by the Wassermann test. In practice two per cent of unsuspected infections from this disease are discovered if it is made routine, not only in aortic disease but for all heart patients.

Within the last few years it has also become a practice to look for focal infection consisting of pus collections around the teeth, the tonsils, gall bladder, genital organs and rectum. In these foci other germs are active, but the streptococcus viridans is the chief culprit. As a rule, the bloodstream is sufficiently resistant to this germ to keep it from multiplying and the chief point of injury of its toxins are found in the bursae and in the fibrous structures of the muscles and around joints.

All heart patients should have a Wassermann test and if the facilities for a proper blood culture are at hand that should also be made, when an active process is suspected. When the blood is not resistant to streptococci we have the distressing clinical experience of witnessing the course of a so-called malignant endocarditis. On the early discovery of the germ it may be possible to build up the resistance so that a true clinical picture of septic endocarditis will not develop.

The operation for removing the tonsils has been so improved of late years that we do not approach it with dread in older people. In fact it is often more necessary to protect older and less resistant people from the continuous effect of tonsillar poison than younger people who can resist focal infection better.

It is wise in aortic disease, even in persons giving a negative test for syphilis, to use iodides and mercury. Sodium iodide has a wonderful capacity to give comfort and relief to the distressing discomfort of pulsation in the neck that is often met with in aortic regurgitation.

There is still a feeling that syphillis is a disgrace, though as a matter of fact it occurs innocently among the rich and the poor and is more dangerous in those who do not deserve to have it than in those who do. It may be inherited and it may be acquired without the slightest knowledge of infection. Many of the nicest

people in the world have suffered years of invalidism which they would have escaped but for the fact that they were not examined for this disease because it was believed they could not have acquired it.

During the last week there came under my observation a woman with acute syphilis of the heart who was the mother of two healthy children. The source of the infection was not traced. Also, a child seven years old in whom the disease, in all probability, was hereditary, judging from the family history of still births, abortions and defective relations. In the first instance the woman, in all probability would have died if the disease had not been discovered at the time it was.

When we have given due consideration to the fundamental causation of disease our patients naturally divide themselves according to the particular damage they acquire through these causes.

The valves of the heart are subject to two important mechanical defects. The valvular orifice may be narrowed or the valves themselves may leak. The most important trouble that can happen is the narrowing of the mitral orifice. Mitral stenosis is typical of valvular heart disease. Such a person suffers all the disadvantages of the difficult passage of blood from the right to the left side of the heart and from the veins to the systemic arteries. This causes congestion of the lungs, the liver and indeed all parts of the body. In most instances the heart shows a murmur occurring while the blood is pouring into the heart in preparation for the contraction of the heart in giving the blood to the head, extremities and the parenchyma of the organs of the abdomen and chest. So the murmur is presystolic. The ventricle of the heart, usually, is not completely filled and the pulse at the wrist is often very small in volume.

The effect of the back pressure on the lungs is very striking and is mistaken for tuberculosis in a great many people with mitral stenosis who spit up blood. Thus, a young woman who was observed only three days ago had been sent to Saranac Lake for supposed tuberculosis, only to be immediately sent back by the experienced doctors of that place who recognized the true nature of the disease.

An examination of the lungs of people with mitral stenosis is very deceptive and x-ray examinations are also frequently misleading. In mitral stenosis digitalis does not always act well and in the early stages it must sometimes be treated by other means. When these people reach the stage where fibrillation of the auricle is present digitalis is specific and useful. When once begun it is often desirable to continue the use of the drug indefinitely, of course, in regulated doses. I recently reported an example of mitral stenosis in a person who took the drug with advantage for thirty-six years.

The second most important valvular condition is aortic insufficiency. A diagnosis of aortic insufficiency is very easy and I am at a loss to know why it is so often unrecognized. It occurs most often in syphilis, but also in rheumatic disease where the damage is general and extensive. Here again digitalis does not always act well and if the leak is serious it often acts very badly. So we find that in the two most serious lesions, mitral stenosis and aortic regurgitation, digitalis sometimes acts very badly. But the need for this drug is so great that the actual reaction to it should be determined in each instance. In very serious conditions we have to use it in spite of everything and then its adjustment is a matter of medical art.

Heart disease is much better understood now than it was a very few years ago, but the application of our present day knowledge is very slow in spreading its benefits to the public at large. This is due to the natural inertia of the medical profession who are loth to abandon their ancient theories. The intrinsic difficulty is that the task of taking hold of a heart patient and restoring him to a life of usefulness is a man-sized job, even when he is conscious of his condition and his cooperation is obtainable. To persuade a person who has heart disease but no symptoms that it is necessary for him to undergo an elaborate course of treatment to prevent the dangerous inroads of a condition of which he is unconscious is a task the size of two men. And yet this is exactly the condition of thousands of people who have focal infections that are undermining their hearts.

There has been a general advance in the knowledge of heart disease, but many clinicians in other branches of internal medicine are very skeptical of its value. They express themselves as believing that the technical side of heart work has no very practical application. Nevertheless, many of the problems that have baffled students since the beginning of time have been practically solved, while others are in the process of solution. This progress has been due to two things: The first is the introduction of graphic methods in the study of the cardiac mechanism which enables us to analyze cardiac action as was never possible before. The other great advance in cardiology is the discovery that a running sore of any kind is dangerous to the integrity of the heart. And worse yet, if there is a mass of corruption in some part of the body where it cannot run, as at the roots of the teeth, or buried in the tonsils, the appendix, the gall bladder or any part of the generative organs, it is absorbed into the system and is almost sure to do damage in the long run.

It has been known by doctors for many years that the best treatment of heart disease is not always in the direct treatment of the heart itself but of the man as a whole.

Perhaps heart disease has never taken its place among specialties, except for a very few men, because heart patients are in need of so many other things. People are brought to the heart specialist to analyze disorders of the mechanism of the heart; to survey its contours and test its valves. But when it comes to treatment the heart specialist must call to his assistance the surgeon, the gastroenterologist, the oculist, the man versed in syphilis and indeed every other specialist and at the same time retain the family physician.

109 East 61st Street.

The Effects of Injecting Collargol into the Vas Deferens

Brams states that the injection of 5 per cent. collargol into the vas deferens causes an intense acute inflammatory reaction which results in destruction of the epithelial cells lining the lumen edema of the mucosa and muscularis, and a dense round-cell infiltration into these layers. At the site of the injection the effect of the trauma, in addition to that of the collargol, results in an exudation of filbrin on the serosa which organizes and becomes adherent to the surrounding structures. This may result in permanent kinks or twists of the vas which can cause partial occlusion of the lumen. At the point of injection there is proliferation of fibroblasts at the sight of the lumen which results in complete obliteration due to stricture formation within two weeks after injection.—*J. Urol.*, Nov., 1923.

Capillary Permeability in Anaphylaxis

If the lungs of a dog previously sensitized to horse serum are perfused with Locke's solution, followed by Locke's solution containing from 0.25 to 1 per cent. of horse serum, these reactions were observed by W. H. Manwaring, D. C. Chilcote and V. M. Hoseplain, Stanford University, California; (*a*) a 75 per cent. reduction in the rate of perfusion flow; (*b*) noncollapse of the lungs when the tracheal clamp is released, and (*c*) the escape of large amounts of fluid from the trachea when this clamp is released. The authors believe that the increased capillary permeability thus demonstrated will ultimately be shown to be the dominant fundamental physiologic change in protein sensitization, to which all other anaphylactic reactions are secondary.—(*J. A. M. A.*)

Diagnosis and Treatment

Observations in Non-Specific Protein Therapy

Carroll DeCourey of Cincinnati, enters upon discussion of cause and effect claiming that "a careful study of the problems of immunity is essential for its proper application and by its use we have probably one of our best means of accelerating metabolic processes and increasing cellular activity." He asserts that as a plasma activator this therapy has almost limitless possibilities.

He also discusses the various theories of vaccine therapy stating that the reaction produced varies with the patient, the type of protein used, the manner of its application and the dosage. The author selected a definite product of the many suggested, employing sterilized milk intramuscularly, every three or four days. These injections were ordinarily followed by a rise in temperature within 10 to 12 hours, very often chills, headaches and sweating, restlessness the first night, and fever persisting for from 24 to 48 hours. Slight diuresis was noted after injections in the majority of cases.

The leucocyte count was invariably raised. In some cases the injections were followed by a primary leucopenia, the leucocytosis following, consisting largely of polymorphonuclear neutrophils. The best clinical results were noted in patients that reacted with high leucocytosis.

In arthritic cases, even in advanced cases, weight increased during treatment.

In two asthmatics, definite foci not revealed by X-ray examination, were established.

The practical features stressed by the author, are as follows:

Acute arthritis (56 cases): The disease terminated in 50 per cent. of the cases after two injections. The remainder recovered after a total of from 5 to 7 injections.

Subacute arthritis (22 cases): Six completely cured, the rest definitely improved.

Gonorrheal arthritis: (2 cases): Had been abed and under various forms of treatment for months. Rapidly relieved and able to move about after two weeks.

Chronic arthritis: (28 cases): With ankylosis and exacerbations. Acute symptoms rapidly subsided after several injections. Owing to ankylosis and persistance of foci, results were unsatisfactory but in a number of the above the euphoria resulting and the patient being less helpless, the treatment was justified.

Buboes (18 cases): Subsided rapidly to this form of treatment. All were treated by 3 to 4 injections, in the buttock and incision was necessary in only two cases and in these suppuration was in evidence when treatment was begun.

Epididymitis (14 cases): Striking results—pain began to subside twelve hours after first injection, decreasing rapidly; not more than three injections necessary for complete relief of sumptoms.

Prostatitis (6 cases): Rapid improvement, swelling subsiding within 24 hours of first injection and never more than two or three injections given.

Gonorrheal urethritis: A number of cases treated coupled with locla treatment. Those that reacted to the stimulation, showed mild symptoms and recovered more promptly.

Adnexal inflammation (15 cases): Ovarian and tubal disease; pain subsided after one injection. All improved rapidly, few receiving more than four or five injections.

Neuritis (8 cases): Two cases of tic douloreux were markedly relieved, one for two months and another for five and a half months. Six cases of sciatica made rapid recoveries, pain being relieved in about 8 hours.

Secondary anemia (3 cases): All showed increased counts.

Angioneurotic edema (4 cases): After removal of foci, symptoms arrested after continued injections.

Purpura (2 cases): Cleared rapidly with small injections (3 to 5 cc) given three days apart.

Pyelitis (1 case): Two months standing, following a pelvic abscess that had been drained, cleared after three injections.

Nonsensative asthma (4 cases): Three injections—no results. One patient on receiving third injection developed a vascular dilatation requiring the prompt use of adrenalin. Author states: "the extreme sensitiveness to protein shock in this type of patient should make us very guarded in a use of therapy of this kind."

Facial erysipelas (2 cases): Marked subsidence within 24 hours, the general condition of the patients improving rapidly.

Chronic diphtheria carriers (4 cases): Two, reacting strongly, had negative cultures within four days; the remaining two, although reacting, continued positive. In the two latter, therapy was not continued after two injections.

The author concludes that injections should be given early in the disease. He farther states tthat non-specific protein therapy, especially in arthritis and in gonorrheal complications is far superior and quicker than any others in this unsatisfactory field. He used different vaccine mixtures with apparent equal success.—*Ohio State Med. Jour.*, Feb., 1924.

Successful Treatment of Dysmenorrhea

Successful treatment of dysmenorrhea which proved effective in the surprising number of 46 out of 50 cases, was discussed in a paper, read by Leonard Phillips, before the Section of Obstetrics and Gynecology of the Royal Society of Medicine on June 7, 1923, and appeared in the transactions of the Society. It showed that treatment by organotherapy was distinctly superior to other measures, the results for a like number of cases treated surgically showing only 25 per cent cured and 25 per cent relieved. The cases, all of which were treated medically in the first instance, were divided as far as possible into clinical types. An analysis of the case papers brought out the following salient features; almost all the patients pursued a sedentary occupation, all were either single or sterile if married, and the majority had some menstrual irregularity, generally of the nature of excessive loss. Menorrhagia was usually associated with some degree of arrested development of the genital organs. No case had any organic disease. The type and position of the pain were most variable; it might be iliac, or hypogastric, or sacral; it might occur before, during or after the flow, and sometimes during all three, when it was commonly associated with the passage of clots. Constipation was severe in half the cases. The majority of the patients were poorly developed, with weak abdominal muscles, faulty posture and breathing, and anæmia or visceroptosis, and many had other complaints such as, headache, vomiting, frequency of micturition and diarrhea.

Pelvic examination, was conducted by the rectum in the unmarried, and by the vagina in married women. The arrested development of the pelvic organs which occurred in half of the cases was one of three types; (i) A small acutely anteflexed uterus; (ii) a small retroverted uterus, with a short anterior lip to the vaginal cervix; (iii) a small retroverted uterus with a short anterior lip to the cervix. These were associated with poorly developed breasts and a male type of pelvis, and with menorrhagia or fortnightly losses much more frequently than with scanty menstruation.

Treatment.—(a) Fifty cases were treated with extracts of ductless glands, either alone or in combination with antispasmodics. The best results were obtained by the following combination: Mist. casc. co. daily, hormotone, 1 tablet t.d.s. for seven days before and during the period, and (if still unrelieved) phenazone, gr. v.; ext. caulophylli liq., ℥ xv.; caffein, gr. v.; aq. chlorof. ad ℥ss. every three hours, until relief was obtained (up to four days). Sometimes tincture of belladonna or other antispasmodic was added to the mixture. Only four cases of this group, which failed to be relieved sufficiently to be able to carry on their work in comparative comfort, came eventually to operation. When the homotone (other ductless gland) tablets were omitted the painful periods often returned.

Organotherapy.—Ovarian extract, corpus duteum, thyroid, anterior lobe of pituitary, mixed gland (B. W. and Co.) and hormotone have each been used. Why the latter should have proved the most valuable in this series of cases it is difficult to say. It consists of extracts of ovary, thyroid, pituitary and testis. We know that hypo-thyroidism, hypo-pituitarism, and hypo-oöphorism may all be associated with pelvic hypoplasia, a condition observed in one-half of the cases in this series. It may be, that in a "Gatling gun" prescription such as hormotone, containing all three extracts—one extract may hit the mark where the others fail. By estimating the basal metabolism rate it is possible to ascertain the existence of hypo-thyroidism even in the absence of clinical signs, but moderate ovarian and pituitary deficiency may be more difficult to determine, and herein lies the value of combined extracts. It is interesting to speculate upon a possible part played by the extract of testis, for this extract alone or in combination with extract of prostate is sometimes successful in dysmenorrhoea cases.

Results.—In ten cases where medical treatment had failed, two were cured by curettage and one by anterior hysterotomy. Hysterectomy was performed in two cases where the uterus contained clots and showed marked arterio-sclerosis, and the remainder (very severe cases) were sterilized by radium. One hundred cases treated surgically were followed up and compared with 100 cases treated medically. It was found that 25 per cent were cured, 25 per cent were relieved, and 50 per cent were unaffected, while the best results were in cases treated by curettage. These results were inferior to those obtained in the series of 100 cases treated medically. The speaker believed that most gynecologists felt that the surgical treatment of dysmenorrhea without physical signs was on the whole disappointing.

Discussion.—The president congratulated Mr. Phillips upon the patient and successful work in the out-patient department upon which the paper was founded, as well as the skill with which the difficulties of nomenclature were overcome by the classification of patients by clinical types. He was particularly

impressed by the small number of patients who came to operation (which in his experience cured 50 per cent, relieved 25 per cent to some degree, and left the other 25 per cent in no way improved) and by the greater success of medical treatment.

Mr. Bonney pointed out that the figures of results of treatment of dysmenorrhea were confused by the variety of causes. If dilatation was limited to cases of the "virginal type" of dysmenorrhea described by Dr. Berkeley and himself the operative results would be much better. It was remarkable that very small uteri were so often associated with extreme hemorrhage for which hysterectomy was required. Retroversion was often a cause of dysmenorrhea in a virgin, and could be cured by reposition of the uterus. He intended to give hormotone a trial. —(*The Lancet.*)

Iodin in the Treatment of Malaria and Kala-azar

Brachio states that the medical profession believes quinin to be the only antidote for malaria, and it seems ludicrous to supplant its leading position, more especially with such a commonplace drug as iodin. All authorities agree that nothing less than 20 grains of quinin a day is of any use in the treatment of an adult suffering from a malarial attack; some are in the habit of prescribing 10 grains three times a day. It is also suggested that to properly treat an attack of malaria the victim should undergo a four months' course before he can be safely considered cured.

Tincture of iodin has been given by Bracho in ten-drop doses, three times a day, and need be continued for about ten days only. Taking the dosage and time of treatment as equal for argument's sake, then for the cost of every patient treated with quinin, thirty patients could be treated with I.

Unless spontaneous recovery occurs, which sometimes happens even with no quinin at all, an ordinary attack of malaria with a week or ten days' treatment often relapses. Cases that resisted oral treatment with iodin up to the fourth or fifth day were given one or two intravenous injections of a quarter grain of iodin, which was sufficient to reduce the temperature to normal and to keep it there.

Quinin as a drug is positively abhorred by all for its taste, and dreaded by most for its after effects. Iodin has nothing objectionable in taste, nor has he ever seen any undesirable physiological effects follow on its use.

The above results and a few others where the spleens were enormously enlarged, and where malarial parasites were not found, led Brachio to try the iodin method in cases of kala-azar with the happiest results. The method is as follows. He prepares the following solution:

Iodin	grs. 6
Potassium iodide	grs. 6
Aqua destillata	oz. 1

Forty minims of the above solution contain half a grain of iodin. This quantity is injected intravenously every other day up to five injections, and then ten drops of tincture of iodin is given by mouth three times a day for a week. Before the fifth injection has been given there appears a marked diminution in the size of the spleen.—(*Indian Med. Gaz.*, July, 1923.)

Melanuria Without Melanosarcoma

John P. Peters says that when it became clear that the material was undoubtedly melanin, an attempt was made to isolate it. As this was begun three days before the patient's death, the amount recovered was not great. The method of isolation described by von Jacksch (precipitation by basic lead acetate, removal of the lead by filtration after treatment by hydrogen sulphid and evaporation of the filtrate) proved unsatisfactory.

In the urine of A. G., a patient with known melanotic sarcoma, the lead acetate removed the pigment, but it proved impossible to liberate it without great loss from the lead sulphid precipitate. The method finally employed consisted of: (1) development of the color concentration of the urine by partial evaporation on the steam bath; (2) precipitation by bromin water after acidification with concentrated hydrochloric acid; (3) recovery of the precipitate by centrifugalization; (4) repeated solution and reprecipitation in large centrifuge tubes by the alternate addition of strong sodium carbonate solution and concentrated hydrochloric acid (the latter added drop by drop until somewhat beyond the point of cessation of effervescence); (5) washing of the precipitate with 0.1 normal hydrochloric acid.

The first precipitation was always incomplete, the supernatant fluid remaining highly colored. Further concentration of the fluid yielded another precipitate. Even repeated concentration, however, failed to remove all the color from the original fluid. Some color was apparently lost in the first reprecipitation also. After the second reprecipitation, however, the supernatant fluid came away practically clear. With the first precipitate a large admixture of acid salts was obtained. These were washed out and carried away in subsequent precipitation. It was later found that repeated washing of the first precipitate with 0.1 normal hydrochloric acid hastened this process. The first precipitation, however, was more complete in highly acid solutions.

Because of the relatively small amount of urine available, no attempt was made to obtain the unoxidized mealnogen by the method of Eppinger. It seemed safer to try for the melanin alone, because the latter by its color afforded constant evidence of its presence and an indication of the efficiency of the methods employed for its recovery.

An analysis of the material made confirmed our findings. The pigment gave all the usual reactions for melanin. For comparison, a sample of melanin alone made from black hair and a small amount obtained from the urine of A. G., were also analyzed.

The results for nitrogen, ash, and sulphur are shown in the table.

Results of Analyzing Melanin from Black Hair and from Urine

Sample	Nitrogen (Ash-Free)	Ash	Sulphur	Iron
From hair	12.80	1.60	2.50	0
W. S.	11.00	11.90	2.21	0
A. G.	8.72	3.34	....	0

The amounts of nitrogen and sulphur were quite comparable to those obtained from the sample of prepared melanin and agree with analyses of melanin found by others in urine from patients with melanotic sarcoma. The nitrogen in the sample from A. G. was considerably lower. The sulphur content was also quite typical. On the other hand, the ash from the W. S. sample was very high. This may be due to impurity. The amount of material available was not sufficient to permit attempts at further purification.

A study of the solubilities of the pigment gave some rather interesting results. Besides the ordinary solubilities which are described as the characteristic properties of melanin, the material from W. S. also showed some distinctive atypical solubilities. It dissolved freely in amyl alcohol and to a lesser extent in butyl alcohol and ethyl alcohol.

The specimen obtained from hair proved insoluble in all these solvents, and the sample A. G. was only slightly soluble in butyl alcohol and insoluble in amyl and ethyl alcohol. The color of these solutions was also quite similar to that of the alkaline solutions. Spectroscopic examination of the solutions revealed no absorption bands in the visible spectrum.—(*Arch. Int. Med.*, Nov., 1923.)

Icterus and Liver Function

A reliable test for liver function, devised by R. Bauer, is the hourly estimation of the excretion of galactose in the urine after the administration by mouth of 40 g. galactose. An excretion above 2 g. is considered a positive reaction. Alimentary glucosuria is positive where there is reason to believe the liver cells have been diffusely injured.

A severe disturbance of liver function was demonstrated in icterus catarrhalis and lueticus, in subacute and acute atrophy, in fatty infiltration and fatty degeneration, in P poisoning and in all forms of cirrhosis of the liver. Inconstant mostly negative findings were obtained in icterus following heart failure, pneumonia, sepsis and infectious diseases. Only negative reactions were found in hemolytic icterus, pernicious anemia and all forms of icterus due to mechanical obstruction.—(*Wiener Arch. inn. Med.*, 6, 9-26, 1923.)

The Use of Basic Diets in the Treatment of Nephritis

It seems logical to W. D. Sansum, N. R. Blatherwick and Florence H. Smith, Santa Barbara, Calif., in selecting an optimal, arterial hypertension-nephritic diet to pay especial attention to the acid-base balance of the food selected. At the same time, other fundamental dietary principles should not be neglected. The same types of diet are used by the authors in the treatment of all forms of nephritis, but they relate here their experience with the arterial-hypertension nephritic group. Such patients were not kept in bed, but were permitted their usual activities. They were not starved. An attempt was made to maintain them at as close to their normal weight as possible. They were given no exhaustive hydrotherapy. They were given no vasodilator drugs. Cathartics were not used, since the bulk insured from one to three natural stools a day. Fluids were not limited. Sodium chlorid was restricted in a few terminal cases when the kidney function was very low. Patients were kept in the hospital from one to two weeks, where a series of palatable, sample meals were served and where they were given careful diet instructions.

This hospitalization provided an opportunity for the study of continuous twenty-four-hour specimens of urine to ascertain whether the diets were sufficiently basic. The neutral foods may be used in the amounts desired by the patient, unless other-

(*Continued on page* 95)

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Cities and Cults

It is in the great cities that the mystical cults flourish most luxuriantly. It is true that they may originate in out-of-the-way places, but they reach the climax of their growth in the centers of population. At least two reasons for this readily occur to the mind, and they happen to be complementary. There is something mystical in the nature of man, generally connotative of the pagan in him, which is better satisfied by communion with nature than by anything else. When he is far removed from the great god Pan a priesthood in the shape of the promoters of the jazz cults thrusts itself upon him as mystical mediators; they supply something "just as good." That is one reason. The other reason, of course, is economic; since city life is to a great extent a process of "living upon one another," it follows that "spiritual" exploitation of one's fellows is bound to be practised by those least able to compete in the social struggle but who yet cannot bring themselves to commit crimes of the ordinary categories.

The moral is that city life is unnatural and that along with such evils as the slum and the crime nest we necessarily find the jazz cult.

Our Supposed Sordidness

In one of our current periodicals there is a typical attempt to explain just why the physician takes a hostile attitude toward the irregular practitioner. We present the whole of the elaborately-spun argument:

"It has long been a commonplace that a woman who has committed a sexual irregularity fares far worse from other women than from men. Some have wondered at this, but it seems simple enough, if true, and I am by no means sure that it is true. She is perhaps treated more meanly and shabbily by women, but men are none too generous towards her, either—though I must say I think many men are afraid to be as generous as they would like to be, on account of domestic black looks from the women of their own entourage, who could be pretty well depended on to misinterpret their generosity and also to make a satisfactory amount of trouble about it. As illustrating this disposition on the part of women in general, and also as exhibiting the proverbial logic of womankind which the late Mr. Howells satirized so pleasantly, I may cite the action of one of our myriad women's clubs in cancelling their contract for a lecture from a clever young woman, Miss A, upon hearing that she had in time past enjoyed a liaison with a clever man, Mr. B, who also gives lectures occasionally. Some one put the question whether, since Miss A's lecture was thus unacceptable, the club's authorities would regard a lecture from Mr. B as unacceptable on the same grounds; and the answer was that they would not, but on the contrary, they would be very much pleased to have him speak! This, I think, is rather hard to beat. Still, as I say, I think it is a simple matter to account for the unreasoning acerbity that women display in these premises. The instinct is developed by the fact that conduct like Miss A's bears on their livelihood. Women, through no particular fault of their own, have long depended on their sex to yield them a living; and anything which tends to impair or contravene the current theory of marriage and the family—the two institutions which assure and regularize a living thus yielded—has a corresponding halo of gravity thrown about it. The antipathy of these women towards Miss A doubtless had its roots in professionalism; even though she had not actually undercut them economically, her conduct was a misdemeanor of evil example, which if followed generally, might undercut them. One sees precisely the same thing in the attitude of a physician towards an irregular practitioner. Even though his own practice be not depleted, he feels that he must act 'for the good of the order.'"

However good this writer's reasoning may be with respect to feminine psychology, the attempted comparison is quite fallacious. In the long run the regular profession profits, in an economic sense, in the presence of charlatans, who are always a menace to community health. Even if this were not so, the profession would be none the less active against them in behalf of the sick—which is exactly what such lay critics as we have quoted find wholly incomprehensible. This attitude, in itself, has nothing to do with economics, but is a normal reaction, involving special knowledge of a human situation, against exploitation of the sick. How, we might ask, would such critics account for the profession's committal to the program of preventive medicine?

Palliation or Cure?

Our distinguished colleague, Dr. Leo Buerger, urges that the United States Government set aside $200,000,000 for the establishment of hospitals which shall care for the middle class and "give them the security to which they are entitled."

These institutions would be open to the care of non-charity patients. Dr. Buerger suggests that they be established in cities with more than 200,000 inhabitants. There are about thirty such cities.

This would be an extension of the principle of Federal aid with a vengeance. Such a paternal subsidization of a particular class would obviously be ill-advised.

If such a step were proper it should be taken by the State, without aid from the Federal Government. It is curious that anyone should wish for the further surrender of State control.

Why not Federal aid for annual vacations, whereby hospitalization is avoided? Why not a Ford car for the head of every family, as a health measure? Why not a regular distribution of theatre tickets, by way of lightening the cost of salutary and essential recreation? All these measures to be restricted to the middle class, of course.

We are well aware of the plight of the middle class, but to subsidize them would complete their demoralization.

Why this aversion to fundamental reform? Why so little interest in the land question? Why so little excitement over projects for the large-scale development of water and electric power, which would solve the dismal city problem? Why the complacent acceptance of abuses growing out of special privilege and monopoly? Why such hatred of the radical, who is a person who insists upon unearthing embarrassing economic facts bearing upon the plight of the middle and other classes?

Miscellany

Conducted by ARTHUR C. JACOBSON, M.D.

Is Old Age a Basis for Deductions?

One of the "colyumists," noting the fact that owners of oil wells have been allowed to cut down their income taxes by charging off a lot for "depletion," suggests that old age also is a depletion of resources and a diminution of capital, and that deductions because of it also should be allowed.

The insurance companies do recognize depreciation in human beings by charging them higher rates as they grow older, but that refers to expectations of life, while it would be a delicate undertaking to say when mental ability and consequent earning power begin to decrease. The brain does wear out at last, but it is about the most perdurable of our organs, the heart alone excepted, and it often works extremely well long after bodily failing has begun and even after it has gone far.

And who would like to set down on his income tax return, "I am no longer the man I was," and to fix an exact money measure of depreciation?—*New York Times.*

An Academy of Medicine Studio

Dr. Robert L. Dickinson, distinguished gynecologist and authority upon matters pertaining to medical art, should have the backing of the profession in his endeavor to get the powers that be of the New York Academy of Medicine to establish a studio in its projected building. Such a studio would be of immense value to medical authors seeking to illustrate properly their articles and books, and it would also give us a living art instead of that which now lies buried and obscure in the catacombs of the present library. To perpetuate this anachronism in these days of physiologic surgery and clinicalized pathology is to declare to the world a partial atavism not consistent with our professed progress.

A twofold object would be attained by such a foundation. In the first place the medical author would have expert advice in preparing his illustrative material, in case he needed it, while the experienced man would have everything within easy personal access, so that the project would have a distinct utilitarian and immediate value; and in the second place there would be the cultural benefit to be derived from a display of the extraordinary esthetic treasures in old medical works the very existence of which, in the present asinine state of things, is naturally enough unknown to the rank and file of the profession.

Such a studio should provide for workrooms insuring privacy.

The lecturer and teacher would find in this studio all the appurtenances of their vocations on the illustrative side.

We think it is quite obvious that the success of such a project, assuming sufficient funds and the good will of the trustees, depends upon the understanding and devotion of some individual. In this case the directing genius stands plainly revealed in the person of Dr. Dickinson himself, in whose mind the idea originated.

Why Death Takes the Doctor's Child

The *Journal of the American Medical Association* raises the question as to whether a physician is without professional resourcefulness in his own home (Feb. 23, 1924). The question is raised on the basis of statistics showing that families in which the father is a physician do not have a lower mortality rate among children than families in other professional or in business groups. We do not think that any question of professional resourcefulness is involved at all, or any question of intelligence, education, or plain neglect. It is a matter of economics. The death rate among children is governed by nutritional and environmental factors which have to be purchased at a rather high cost. It is safe to say that the statistics in question reveal an unhealthful state of the professional exchequer and nothing more.

Governmental Regulation of Physicians

(Concluded from page 81)

ment was repealed we would have this situation, that the states that wanted to be dry could be so and those that did not want to be dry could be just as wet as they wanted to be.

I believed at one time we were getting near to real temperance. When I was a young lawyer it was common when a case had been settled to have a big dinner when we ate, drank and were merry after our work was done. At that time, a man who took a drink during business hours was marked as slipping. A person who carried a flask was looked upon as a degenerate. If that was applied now we would have many degenerates. I think we were moving toward real temperance.

Forty years ago intoxication did not cause much comment, but fifteen years ago a man who became intoxicated was ostracized from decent society. That, alas, is not true to-day. Intoxication is becoming more and more common under prohibition. In getting away from temperance we have gone on a whiskey diet, and whiskey is as common as water.

I am not sure Judge Knox' opinion will be sustained. If you read over the history of prohibition you will find the United States Supreme Court has never said 2.75 beer is intoxicating, but they said that Congress had the right to prohibit the sale of even non-intoxicating beverages if that be necssary to carry into effect the prohibition of the sale of intoxicating beverages.

They can prohibit the sale of any beverage that resembles an intoxicating beverage. The question of the limitation they put on the number of prescriptions a physician may use will be carried out in that manner, and what is a reasonable number of prescriptions will be considered. The courts may hold that the use of an excessive number of prescriptions is evidence that the physician is not using them in good faith. This is a much more complicated question than some of the gentlemen here to-night thought. I hope this case will be pushed, so that you physicians will be able to get some remedy from Congress after the adverse opinion which I believe may be rendered. My hope, you see, is that we may be getting away from the 12 year old intelligence that passed that Act and have reached at least the age of twelve and a half.

Dr. Reynold Webb Wilcox: I would call attention to the reference made to the intelligence tests in the army; these tests did not indicate an average educational age of 12 years, but a mental age beyond which those individuals could not go. And inasmuch as the average mental age of four million draftees was 12 years, beyond which they can never go, it is not surprising that with these people having the power of the vote we are confronted with this situation.

I hold no brief for the wets, for our representative democracy probably represents these people. I do not use alcohol as a beverage, but as a scientist and a physician I resent this Act, and I believe that is the reason why so many practicing physicians do not take out these prescription blanks. There is no power in governmental authority sufficient to make bartenders out of us, but on the other hand there is no question of the scientific value of alcohol. I can take Mrs. Allen's list and give you the special reason for each adverse opinion thereon, but this is not the time for that. The highest authority in the United States, American Therapeutic Society upon the treatment of disease has issued its dictum and until science further advances that dictum is absolute. Any other opinion by any medical organization or individual is entirely superfluous. It is that alcohol in the form of whiskey or brandy is a drug of limited use in a limited number of diseases and conditions for which there is no known substitute. If I had known I was to speak tonight I would have looked up the exact data, but I recall that Doctor Leon Solomon of Louisville, brought to my attention that a certain insurance company insures people, who do not use alcohol, at a lower premium based on the statistics of the old line companies. The influenza epidemic nearly bankrupted this life insurance company because its policy holders could not use alcohol even as a drug. Many statements might be made on this topic, but the value of the scientific use of alcohol is settled.

The Volstead Act creates a difficulty because it goes far beyond the 18th Amendment. Whenever Congress undertakes to put over a quantitative regulation disaster usually results. Two years ago I was called to appear before a congressional committee in Washington on the Harrison Law. What do you suppose I found? That a congressional committee was seriously considering the necessity of establishing by law the dose of morphin at one-fourth of a grain. My answer to that was very simple and it applies in the same way to the pint of alcohol in ten days as a therapeutic agent. To have curative limits as to quantity set and bounded by persons ignorant of the basic conditions is impossible.. "I would suggest you limit sermons to five minutes, arguments before the courts to ten minutes, and judicial decisions must not take longer than seven minutes to read. The opinions of the Supreme Court of the United States, since these Justices are not of the garden variety, we could probably allow fifteen minutes."

The committee replied that they thought one-fourth of a grain of morphin was all a person ought to have at one time. To which I retorted that if the chairman thought that ¼ grain of morphin was a proper dose on all occasions I hoped at 12:30 that night he would attempt to pass a gall stone.

I approve of the Volstead Act as an economic advantage to the country, but I regard it as the greatest moral wrong ever perpetrated on a civilized nation, because it prevents the physicians from acting with good judgments which both Statute law and science demands and attempts to force him to violate the dictates of his conscience. Some of it is uninttligible. I regret it was born with a stain on its character. More than that, I regret that it is not enforced, because this is the best way to get rid of a vicious law. It has been a political football. If it could be amended so that it would be in harmony with the letter and spirit of the 18th amendment so that it could be enforced and could be made intelligible without rulings by subordinate enforcement (?) officials, I would agree with it most heartily.

Dr. L. W. Zwisohn: If it were true that the prohibition and all our laws are passed by the will and demand of the people, laws would be passed in harmony with the welfare of the people. The real facts are that in many instances, a number of individuals come together and persuade the people to pass laws detrimental to the public welfare. In other words, the public is being defrauded by misrepresentation. Take for instance the Chiropractic fraud. The Chiropractors demand legal recognition, claiming they can cure all diseases that flesh is heir to by massage, or manipulating certain nerves. To mislead the public they do not call it by its proper name, they give it a fancy name. The people not knowing what that word means believe it is some new scientific discovery. As a matter of fact it is pseudo-science and a fake upon the public. If such a law were passed would that be a demand from the public? It would be a demand by a few for their own interest against the welfare of the public health.

Disease and Development

(*Concluded from page* 81)

velopment of Spelerpes Bilanectus", p. 193, in "Science". They have been inferred to be present in human embryos and were suspected to have to do with development, by Minot, Foster and Balfour, and are by way of the embryotechtonic curves stated to be the cause of all peculiarities of human embryos, normal and abnormal by Eugene Boujard, in his notable achievement, "The Mechanism of Modelling of Human Embryos: Embryotechtonic Curves", sanctioned by Wilhelm Roux. It would now appear evident that it is through the route of their movements that nearly all of the peculiarities of plants and animals are brought about. And that as these movements are achieved normally under normal stimuli, so are the embryos and children normal. When they are badly achieved or are maladapted to the enronmental stimuli so are they abnormal embryos, fetuses, children and adults.

"As the same forces act on each generation, and form a series of stimuli which are similar for each generation, so each generation repeats in its life the course of development followed by all its ancestors; or more concisely, the continuity of the protoplasm repeats in each generation the same series of reactions to stimuli that it has repeated, with additions, in each previous generation since it began its existence. We have here the explanation of growth, development, and inheritance."[41] The converse is equally true in disease. Exchanging the word movements for stimuli and forces merely clarifies the understanding, for of course forces and stimuli can only be made manifest by some kind of movement, as shown by Spencer, "First Principles".

Starting with the ova, direct continuations, or indirectly connected with the spirally moving or circumnutating pistil; and combining them with pollen, direct or indirect continuations of the circumnutating anthers; it would be plainly seen that the seedlings, are not *new* live forms, but a continuation, by union of two ancestral living beings. The spiral motion would be continued, not lost. The crowding of the pollen on the stamen, and the crowding together of the ova in the ovary would force both into a somewhat spiral position and shape, the spiral being an adaptation to resistance.[42]

The seedling growing too long for its capsule would increase the already existing spiral shape. Enlarging more from expansion of gases, the cotyledons and caulicle and radicle would lengthen and increase their semi-spiral shapes. The heavier particles would gravitate towards the future rootlet; the lighter gases towards the future stem. An increase of expansion and of absorption would increase these peculiarities; so that the root would tend ever downwards and the stalk ever more upwards. "It may,

however, be suggested with some degree of probability that the arching was aboriginally caused by mechanical compulsion, owing to the confinement of the parts in question within the seed-coats, or to friction whilst they were being dragged upwards. But if this is so, we must admit from the cases just given, that a tendency in the upper part of the several specified organs to bend downwards and thus to become arched, has now become with many plants firmly inherited. The arching, to whatever cause it may be due, is the result of modified circumnutation, through increased growth along the convex side of the part."[43]

"The term epinasty is used by De Vries to express greater longitudinal growth along the upper side of a part, which is thus caused to bend downwards; and hyponasty is used for the reversed process, by which the part is made to bend upwards."[43] "He who likes, may speak of ordinary circumnutation as being combined with epinasty, hyponasty, the effects of light, gravitation, etc.: circumnutation is modified by these agencies."[44] All could be spoken of as growth-movements due to increased expansion of gases and increased absorption, above or below or to either side; acting in spiral directions, continued and modified by environment from the original spiral, a continuation of the original spirals in the pistil, ovary, stamens and pollen of the parent forms.

(Concluded in May issue)

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* Every individual dies from the disease with which he was born and very early in the period of development the organ is marked which is the weak link in the chain.—Stockard. q.v.

The nine hundred and ninety with unfortunate congenital variations are extinguished in the struggle.—Lull. q.v.

1 Haeckel, "Evolution of Man", V. I, p. 6. "Hist. of Creation", V. I, pp. 10-11 (l.c.).
2 Spencer. "Synthetic Philosophy, Biology", V. I, pp. 133-139.
3 Spencer, "Synthetic Philosophy, Biology", V. II, p. 368.
4 Ibid.
5 Darwin, "Variations of Animals and Plants", V. II, p. 302.
6 Gray's "Lessons and Manual of Botany", p. 38.
7 Same, p. 49.
8 Same, p. 56.
9 Same, p. 72.
10 pp. 83-84.
11 Richard Swann Lull, "Organic Evolution", p. 179, citing Prof. E. D. Cope, "Primary Factors of Organic Evolution".
12 Spencer, "First Principles", pp. 201-202, quoting Mr. James Hinton, in "Medico-Chirurgical Review", Oct., 1858.
13 Emanuel Swedenborg, "Animal Kingdom", (Wilkinson), Vol. I, pp. 170, 125.
14 Hans Pringsheim, "Variations, etc." Fuller citations later.
15 Haeckel, "Evolution of Man", V. I, p. 158.
16 Darwin, "Powers of Movement in Plants", p. 3, 4, 5, Int.
17, 18, 19, 20 From Darwin, "Powers of Movements in Plants", pp. 2, 3, 4, Introduction quoting Sachs, "Arbeit. d. Mot. Inst., in Würzburg, "Text-Book of Botany", "Phys. Veg.", and Wiesener and others.
21 Haeckel, "History of Creation", V. I, p. 229.
22 Same, p. 171.
23 Darwin, "Origin of Species", V. I, pp. 15, 16.
24 Darwin, "Powers of Movement in Plants", p. 491.
25 Darwin, "Powers of Movement", "Movements of Climbing Plants", pp. 571 and 173, 4, respectively.
26 Burbank, "Methods and Discoveries", V. I, p. 43.
27 Same, V. I, p. 53.
28 Spencer, "Synthetic Philosophy, Biology", V. II, p. 621.
29 Lull, "Organic Evolution", pp. 205, 206, 214, 215.
30 Darwin, "Origin of Species", V. p. 15-16.
31 Same, p. 16.
32 Davenport, "Science", 11, 25, 1904, p. 700.
33 Haeckel, "History of Creation", V. I, p. 171.
34 Spencer, "First Principles", p. 201, citing Mr. James Hinton, in the Medico Chirurgical Review for Oct., 1858.
35 Haeckel, "History of Creation", V. I, pp. 229, 230.
36 Same, p. 229.
37 Lull, "Organic Evolution", p. 179, citing Cope, E. D., "The Origin of the Fittest", 1887, also Cope, E. D., "Primary Factors of Organic Evolution", 1896.
38 Darwin, Charles, LL.D., F.R.S., "Powers of Movement in Plants", Introduction, pp. 3, 4.
39 Same, p. 491, 1896, D. Appleton & Co., 1896.
40 Same, p. 571, with references to his "Movements and Habits of Climbing Plants", 1875, pp. 173, 174.
41 Henry B. Orr, "Theory of Development and Heredity", MacMillan, 1893. In the preface pp. V, VI, he says, "I do not pretend to have made any discovery. I have attempted to bring together a number of facts and conclusions which have not generally been supposed to be related."
42 Spencer, "First Principles", p. 202.
43 Darwin, "Powers of Movement in Plants", pp. 90, 91 (Sachs), with citations from Sachs, "Arbei. Bot. Inst., Würzburg, Vol. I, 1873, p. 403.
44 Darwin, "Powers of Movement in Plants", pp. 267-8, citing De Vries, "Arbeit. Botan. Inst.", Würzburg, Heft II, 1872, p. 223.

COMING EVENTS CAST THEIR SHADOWS BEFORE

W. F. McNutt, Sr., M.D.,
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Campbell makes no explanation of how coming events cast their shadows. He leaves it to the individual. One must judge by the signs of the times, or by the expressed needs of peoples. Specialism in medicine has increased in the past few years. The people seem to believe, only specialists can diagnose and treat their ailments. And specialists, in some cases, have encouraged them in their deluded belief.

The signs of the times are, the family physician is or soon will be in demand again. The people find specialists expensive and unsatisfactory. To call different specialists for every ailment is certainly a poor substitute for a family physician. Specialists are necessary and must be called in consultation when necessary or the patient sent to the specialist for treatment. In most cities in the United States there are more specialists than are necessary and too few family physicians. Many country villages are without physicians. Hippocrates gave attention to diseases of the throat and Aetius mentions several astringents for enlarged tonsils and says when these fail, excision must be resorted to. Guy de Chauliac gave much attention to nose and throat, in the fourteenth century.

The present family physician is better educated than many of the older ones were. He must now have two to four years' academic instruction. Great advances have been made in the diagnosis of contagious and infectious diseases.

Insects play an important part in the etology of many diseases, the older physicians who do not read had not dreamt of. A few of these left over, as it were, do not believe in what they call the new ideas. New methods, new diseases, new names and words and new instruments for diagnosis are being constantly introduced. New dictionaries are necessary.

It is not necessary for physicians to go abroad to learn many things that were not taught in our older medical schools. While travel is an important source of improvement to the educated observer, neither London, Paris, Berlin nor Vienna has superior teachers or laboratories to many of our own. Coming events cast their shadows. We will soon have physicians from abroad coming to our schools to see and learn our methods. We, as also have the physicians of Europe, much to learn. It is by keeping constantly in mind Hamlet's admonition that progress is made, "There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy." This is applicable to many things in the daily life of the physician. Particularly to the action of medicine, especially to the action of the mind on the body, and in psycho therapy, etc. In the incipient stages of many diseases coming events cast their shadows, the interpretation of which depends upon the judgment and experience of the physician.

It is not necessary for the family physician to have a well equipped and extensive laboratory. He can send his specimens to a regular established laboratory or send his patient. A well equipped laboratory employs experts, and therefore is more efficient than a busy practitioner who only is expected to make such examination occasionally.

An unselfish devotion of the patient's family is characteristic of the regular family physician, which cannot be expected of the several specialists. We often hear the term, our family physician, spoken in words of endearment. The specialist must be paid, as he should be; too often the family physician gives his services without money and without price. Most physicians are notoriously poor collectors. They sympathize with their patients, often to the neglect of themselves and their families, until coming events cast their shadows in the way of unpaid bills and collectors, do they stir themselves to make collections.

Correspondence

The Extension of Human Life.

To the Editor of the Medical Times:

I note in Dr. Jacobson's Miscellany column in the Medical Times for February a quotation from the *Freeman* in regard to the Life Extension Institute work which is very misleading and I hope you will give space to a true statement of the Life Extension philosophy, which presents it in a very different light than as characterized by the *Freeman*. There is no justification for the implication that we are endeavoring "almost ferociously" merely to extend human life without regard to its quality. As proof of this I quote the following:

In 1911 in the pamphlet "American Life Waste" which was one of the first public appeals for periodic health examinations, I stated:

'Nothing in these pages could be construed as placing an exaggerated value on mere longevity. A due sense of proportion is necessary in all such efforts. Perhaps we can best make for *efficient* longevity by bearing in mind the principle that life is a trust fund, which should neither be hoarded with parsimonious and sterile solicitude, nor expended with lavish and futile extravagance."

In the 1915 edition of the book "How to Live", the health "bible" of the Institute, Supreme Court Justice Taft stated:

"The mere extension of human life is not only in itself an end to be desired, but the well digested scientific facts presented in this volume clearly show that the most direct and effective means of lengthening human life are at the same time those that make it more livable and add to its power and capacity for achievement."

One of the principal educational pamphlets of the Institute is entitled "Longer and More Effective Living."

In an address before the Recreation Congress in Atlantic City, October 11, 1922, I stated:

"Science is justified in holding out the hope not only of a great prolongation of human life but an improvement that will make it worth while to live longer. Modern science rejects the Shakespearian tradition of the 'lean and slippered pantaloon' and substitutes the ideal of an active useful old age freed from the sordid handicaps and disabilities which make that period of life one of the most difficult problems that confronts humanity."

In the book "Health Building and Life Extension" which is based on our report of the Hoover Committee on the Elimination of Waste in Industry, there appears on the first page this statement:

"Good health is the foundation not only of business success, but of successful living. Its influence on personality is profound, and in urging that one's health assets be examined and improved to the highest degree, we are seeking to accomplish that which will make life more colorful, more satisfying, and in every way more livable for the great mass of the people."

I venture to ask for space in your columns for this presentation of the real views held by the Life Extension group because there is an all too prevalent notion in the minds of medical men that the Seven-Ages-of-Man are more or less fixed and that a good deal of the fuss that is being made over keeping people well is not worth while and is in fact merely a more or less ignoble and selfish effort to hang on to the coat tails of Father Time.

The real purpose of the Life Extension Institute is to extend the Health Span and Work Span—the period of full vitality—which is now very brief as compared to the actual Life Span.

Sincerely yours,

Eugene Lyman Fisk, M.D.
Medical Director

Diagnosis and Treatment

(*Continued from page* 90)

wise stated. They are: butter, cornstarch, cream, lard, sugar and tapioca. Many of the acid-producing foods should not be used. A few of the less acid ones may be used in specified amounts. In general, all vegetables, nuts, fruits and sweet milk, with the exception of prunes, plums and cranberries, are basic in their final reaction. These may be used in the amounts desired by the patient. The total excess of base over acid is expressed in terms of cubic centimeters of a normal solution. The patient readily understands when he is told that the urine acidity should not be greater than two times that of the body. If the urine is as much as 100 times as acid as the body he easily understands the needs for more basic food.—(*J. A. M. A.*)

Modern Aids to Cataract Extraction

George S. Derby emphasizes the advantages of paralyzing the orbicularis by the injection of procain before operating for cataract. He thinks this constitutes one of the greatest advances in the technic of cataract extraction developed in recent years. He analyzes 100 cases of such extraction and, of these, he personally operated on 72 cases with a vitreous loss of only 2.5 per cent. He feels that by perfect anesthesia there is much greater chance for ultimate success.—(*J. A. M. A.*, Dec. 22, 1923.)

Sympathectomy under Local Anesthesia in Angina Pectoris

Bacon reports an exceedingly severe case which had been for a time controlled by amyl nitrite, but later was not controllable by narcotics. The author finally decided to do a sympathectomy under 1 per cent. procain. He excised the sympathetic ganglion. The operation was followed by a severe attack with vomiting and was controlled by nitrites. Five months after the operation the patient reported in better health than had existed in two years and had no pain in the heart region, but an aching pain in both arms and hands when they were cold or when he became excited.—(*J. A. M. A.*, Dec. 22, 1923.)

The Anemias of Infancy—Causes and Treatment

O Herrman says that many European authors, more especially the French, believe that most of the severe secondary anemias of infants which are associated with an enlarged spleen are due to syphilis. It is true that a certain number of syphilitic infants do show the characteristic blood picture; however, the majority do not. In New York City at least, syphilis is not as frequent an etiologic factor as improper feeding and digestive disturbances. In the syphilitic cases author gives salvarsan and mercury.—(*Arch. Ped.*, June, 1923, 367.)

Treatment of Syphilis Afloat

Ferguson thinks treatment of syphilis aboard ship solved by introduction of sulpharsenol. Finds when given subcutaneously results at least as good as with any other drug. Feels that it will take the place of Novarsenobillon. Advantages include no preparation of patient, except cathartic the night before, and urinary test, also the ease of preparation of solution and lack of shock effects. The drug is effective in healing chancroid cases.—(*Jour. Royal Nav. Med. Serv.*, July, 1923.)

Reaction of Peritonsillar Tissues to Tonsillectomy

Geo. Fetterolf and Herbert Fox say the peritonsillar region constitutes a preoperative field studied with thrombi which may be sterile or septic. They believe that as trauma, sepsis and muscular action are the principal factors in the formation and dislodgment of thrombi, the actively muscular larynx is a particularly favorable region for the dislodgment of such thrombi into the superior caval circulation. They think many cases of pulmonary embolism escape notice on account of their small size, sterile character and prompt resolution.

For this reason every tonsil operation should be attended with every possible surgical device for promoting asepsis. To further this principle, the authors suggest that the routine use of needle-carried sutures for tying bleeding vessels be abolished and that surface ties be used instead. The former are never surgically clean and the authors feel that their use carries possibilities of infection of at least the tissues adjacent, although post-tonsillectomy complications may be at times of inspiratory origin.

The authors believe that such origin is not as common as has been thought. Fetterolf and Fox are of the opinion that as a result of their studies there may be a change in regard to the capsule of the tonsil. Instead of removing it, it may be de-

cided that it forms too good a bulwark of the peritonsillar tissues to permit its being taken away. They feel it is not impossible that the so-called intracapsullar tonsillectomy remommended by G. Hudson Makuen will be demanded by the highest ideals of safety, so that in a perfected form, the operation can be performed by all of us.—(*Am. J. Med. Sci.*, Dec., 1923.)

Factors Upon Which Successful Use of Local Anesthesia Depends

Farr finds local anesthesia satisfactory in over 90 per cent. of biliary and gastric surgery. Complete abolition of muscular reflexes is insured by injection of local anesthesia. The author sets forth the technic in various operative procedures.—(*Ill. Med. Jour.*, July, 1923.)

Intravenous Arsphenamine Treatment of Young Infants

Gelbjerg-Hansen has given intravenous neosalvarsan to 132 congenital syphilitics with excellent effect. In 19 under four months of age W. F. became negative in 16, and nearly negative in 3. Nine children died within ten days of birth and 9 from intercurrent disease and one from congenital heart disease. The author's experience shows infants bear arsenicals better than adults. The dose of 0.075 neosalvarsan under age of 3 months, was increased to 0.09 from 3 to 6 months, and 0.12 from 6 to 12 months. After the age of 8 years, dose was 0.3 and, for older children, 0.45. There were no mishaps in over 376 injections.—(*Ugesk. f. Laeger, Copenhagen*, Oct. 11, 1923.)

Blood Pressure Under Intraspinal Anesthesia

Virgillo was unable to detect any connection between pressure in the spinal fluid and blood pressure. The latter always declined during intraspinal anesthesia from 10 to 20 mm. The author gives a preliminary injection of 0.25 caffein two to two-and-a-half hours before intraspinal anesthesia.—(*Arch. Ital. di Chir.*, Aug., 1923.)

The Relation of Laboratory Aids to the Practice of Medicine and Surgery

The development of laboratory aids to diagnosis is reviewed by Lewis A. Conner, New York. The rapid increase in the number and in the complexity of the laboratory aids has been associated with a profound change in the character of the instruction given to our medical students. The work required in physiology, in biologic chemistry, in bacteriology and in immunology has increased by leaps and bounds because of the ever growing application of these sciences to the clinical branches; and the additional time needed for these basic sciences has, to some extent at least, been taken for that formerly allotted to the more strictly clinical study of patients. The increasing emphasis laid on these rapidly developing laboratory methods has changed in some degree the attitude of the student toward clinical medicine. The so-called "exact" methods of investigation seem much more important and much more satisfactory than the less tangible and less "exact" study of the patient himself and of the history of his illness. The making of a Widal test appears so much simpler and more convincing a method of establishing the diagnosis of typhoid than a painstaking analysis of the patient's history and a thorough physical exploration; the reading of a roentgenogram of the chest seems such a refreshing short cut to the diagnosis of pulmonary tuberculosis; the electrocardiogram demonstrates so readily, and with such a saving of intellectual effort, the existence of, say, a two to one heart block, that it is not to be wondered at that most medical students and interns should now leave the hospital wards and go out as practitioners imbued with the feeling that all these laboratory and instrumental aids are a necessary and indispensable part of their professional equipment.

They have come to lean on these more heavily than on the more strictly clinical methods of examination. This attitude on the part of the well trained young practitioner has been perhaps the most important single factor in deciding him to shun the rural districts and smaller towns in choosing the location for his practice. However, it is only by the help of these laboratory aids that modern clinical medicine and surgery have made, and will continue to make, their chief advances. But the indiscriminate application of many of the more complicated and delicate of these procedures to be individual problems of the practitioner is not necessary and will often serve to confuse rather than to clarify the issue. The special field for such tests lies in their application to the problems of clinical research, as these are carried on in thoroughly equipped hospitals, manned by highly trained and carefully chosen workers.

Under such circumstances these tests are invaluable in bringing to light new clinical features or in making more understandable those already known. Connor pleads (1) for greater attention on the part of teachers to the need of establishing in the minds of students a truer perspective of the proper relationship between laboratory aids and the older bedside methods of clinical study, and an appreciation of the importance of acquiring skill in the latter methods; (2) for a sense of greater responsibility on the part of the general practitioner for the trustworthiness and accuracy of the tests employed by him and for a proper understanding of the principles; the significance and the limitations of application of such tests, and (3) for an effort on the part of all of us to resist and counteract the growing inclination to regard the use of laboratory and instrumental aids as the chief means of diagnoss and to give too little weight to the more laborious but more important measures of painstaking clinical observation and careful deductive reasoning.—(*J. A. M. A.*)

Recurrences in Cancers of the Breast

Recurrence of cancer after a radical, thorough operation, according to John E. Summers, Omaha, depends on whether it is dominant or recessive; that is, the degree; and hence the expectation of late or early recurrence. Cancer in the human race is recessive; the noncancerous tendency is dominant. Fibrosis and hyalinization of the tissues of a recurrent cancerous breast tumor indicate that in that particular individual the noncancerous tendency is relatively recessive: hence a favorable prognosis. Both are indexes of the necessities, extent and numbers of irradiations as aids to nonrecurrence.

Whatever the cancer element or infective germ may be, there must be an inheritable predisposition, a fertile soil for the determination of the process, whether the local irritant is activated on the lower animal or on man. The propaganda of the Society for the Control of Cancer is bringing many cases of tumor earlier to the attention of the surgeon, particularly tumors of the breast. As a result there is surely a more hopeful outlook as to the cure of a greater number of cases of cancer of the breast. Summers does not agree with Slye that cancer cannot be a germ disease. That cancer growth and metastasis do not follow the laws of bacteriologic infections is no reason that it may not have its own law, as have othrs which we acknowledge but as yet cannot identify.—(*J. A. M. A.*)

Chemical and Colloid Chemical Investigations of Blood Serum and Edema Fluid

Permeability and osmotic theories do not fully explain the facts; one must assume a general retention of the electrolytes of the plasma in the blood plasma itself and in the affected tissues, say Fodor and Fischer. The conducting power of the serum proteins is raised in the dropsical state, and the salt content in the edema fluid and in the serum increased. The content of org. alkalies is below the normal, both in the serum and edema fluid. The authors attempt an explanation of edema on the lines of M. H. Fischer's theory.—(*C. A.*, vol. 17, No. 21, Nov. 10, 1923.)

The Relation Between Creatine Excretion and Acidosis

That creatine excretion and acidosis are not interdependent is shown in the following experiments by A. Palladin: (1) When to a starving, phlorhizinized dog relatively small amounts of protein are fed, excretion of total acetone markedly decreases; creatine is unaffected. (2) If, instead of protein, fat is fed acetone excretion increases; creatine is unaffected. (3) Excretion of creatine does not follow when a normal dog is fed a diet with an acid ash (rice and oats). It is lacking just as it is when the dog is fed a diet with a basic ash (potatoes and beets).—(*Biochem. Z.* 136, 359, 1923.)

The Normal Variations in Plasma Hydrogen-ion Concentration

Data are presented by Cullen and Robinson on the variation of the plasma pH in 27 normal medical students, together with parallel observations on the alkali reserve and O_2 contents and capacities in large proportions of the samples. The pH of the plasma varied from 7.28 to 7.41 and lay between 7.35 and 7.40 in 21 out of the 27 specimens. However, it is evident that any pH values, measured at 38° between 7.3 and 7.4 must be accepted as normal, and it is probable that in a similar number of normals taken at random there would be greater variations than in this group where all conditions were so uniform.

These facts would lend support to the view that the ordinary normal individual and day by day variations in the reaction of the blood are greater than has been supposed. Within the normal limits of pH and CO_2 content there is apparently no systematic relation between the variables pH and CO_2 content nor between CO_2 and hemoglobin content. Variations between the pK_1 of Hasselbalch's equation, values of whole blood and plasma from 0.017 to 0.058 were observed so that it is evident that there exists a larger variation in the pK values.—*J. Biol. Chem.* 57, 533, 1923.